

Result No.	Query			Description		
	Score	Match	Length	ID		
1	842	100.0	157	15	US-10-609-370-2	Sequence 2, Appli
2	689.5	81.9	696	9	US-09-817-647-23	Sequence 23, Appl
3	689.5	81.9	696	9	US-09-877-665-23	Sequence 23, Appl
4	689.5	81.9	696	13	US-10-136-573A-23	Sequence 23, Appl
5	689.5	81.9	696	14	US-10-215-862-23	Sequence 23, Appl
6	689.5	81.9	696	17	US-10-944-116-23	Sequence 23, Appl
7	689.5	81.9	696	20	US-11-035-787-23	Sequence 23, Appl
8	689.5	81.9	720	9	US-09-817-647-6	Sequence 6, Appli
9	689.5	81.9	720	9	US-09-877-665-6	Sequence 6, Appli
10	689.5	81.9	720	13	US-10-136-573A-6	Sequence 6, Appli
11	689.5	81.9	720	14	US-10-215-862-6	Sequence 6, Appli

Qy 121 FCAAFYFKSRNITANSVSEBWKGLBSPNLOQDK 157
Db 121 FCAAFYFKSRNITANSVSEBWKGLBSPNLOQDK 157

RESULT 2
US-09-817-647-23
; Sequence 23, Application US/09817647
; Patent No. US2002082229A1
; GENERAL INFORMATION:
; APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
; TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related
; Ligands and Uses Therefor

NUMBER OF SEQUENCES: 23
CORRESPONDENCE ADDRESS:
ADDRESSEE: Genentech, Inc.
STREET: 1 DNA Way
CITY: South San Francisco
STATE: California
COUNTRY: USA
ZIP: 94080

COMPUTER READABLE FORM:
MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: WinPatIn (Genentech)
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/817,647
FILING DATE: 26-Mar-2001
CLASSIFICATION: <Unknown>

PRIOR APPLICATION DATA:
APPLICATION NUMBER: 09/107,979
FILING DATE: <Unknown>
ATTORNEY/AGENT INFORMATION:
NAME: Conley, Deirdre L.
REGISTRATION NUMBER: 36,487
REFERENCE/DOCKET NUMBER: P1084R1-2

TELECOMMUNICATION INFORMATION:
TELEPHONE: 650/952-9881
TELEFAX: 650/225-2066
INFORMATION FOR SEQ ID NO: 23:
SEQUENCE CHARACTERISTICS:
LENGTH: 696 amino acids
TYPE: Amino Acid
TOPOLOGY: Linear

FEATURE:
NAME/KEY: Human NRG3B2
LOCATION: 1-696
IDENTIFICATION METHOD:
OTHER INFORMATION:
SEQUENCE DESCRIPTION: SEQ ID NO: 23:
US-09-817-647-23

Query Match 81.9%; Score 689.5; DB 9; Length 696;
Best Local Similarity 92.3%; Pred. No. 2.1e-63;
Matches 131; Conservative 4; Mismatches 4; Indels 3; Gaps 2;

Qy 1 SSSSATTTPETSTSPKPHHTTSTYSTERSEHFKPCRDKDLAYCLNDGECFVIETLTGSHK 60
Db 256 SSSSATTTPETSTSPKPHHTTSTYSTERSEHFKPCRDKDLAYCLNDGECFVIETLTGSHK 315

Qy 61 HCRCKEGYQGVRCDDQFLPKTDSILSDP-NHLGIEFMESEVYQVLSISCIIFGIVIG 119
Db 316 HCRCKEGYQGVRCDDQFLPKTDSILSDP-TDHLGIEFMESEVYQVLSISCIIFGIVIG 375

Qy 120 MFCAAFYFKSRNITANSVSEE 141
Db 376 MFCAAFYFKSKQ--AKQIQEQ 395

RESULT 3
US-09-877-665-23
; Sequence 23, Application US/09877665

; Patent No. US20020164680A1
; GENERAL INFORMATION:
; APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
; TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related
; Ligands and Uses Therefor

NUMBER OF SEQUENCES: 23
CORRESPONDENCE ADDRESS:
ADDRESSEE: Genentech, Inc.
STREET: 1 DNA Way
CITY: South San Francisco
STATE: California
COUNTRY: USA
ZIP: 94080

COMPUTER READABLE FORM:
MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: WinPatIn (Genentech)
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/877,665
FILING DATE: 08-Jun-2001
CLASSIFICATION: <Unknown>

PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/09/109,206
FILING DATE: 30-Jun-1998
ATTORNEY/AGENT INFORMATION:
NAME: Conley, Deirdre L.
REGISTRATION NUMBER: 36,487
REFERENCE/DOCKET NUMBER: P1084R1-1

TELECOMMUNICATION INFORMATION:
TELEPHONE: 650/225-2066
TELEFAX: 650/952-9881
INFORMATION FOR SEQ ID NO: 23:
SEQUENCE CHARACTERISTICS:
LENGTH: 696 amino acids
TYPE: Amino Acid
TOPOLOGY: Linear

FEATURE:
NAME/KEY: Human NRG3B2
LOCATION: 1-696
IDENTIFICATION METHOD:
OTHER INFORMATION:
SEQUENCE DESCRIPTION: SEQ ID NO: 23:
US-09-877-665-23

Query Match 81.9%; Score 689.5; DB 9; Length 696;
Best Local Similarity 92.3%; Pred. No. 2.1e-63;
Matches 131; Conservative 4; Mismatches 4; Indels 3; Gaps 2;

Qy 1 SSSSATTTPETSTSPKPHHTTSTYSTERSEHFKPCRDKDLAYCLNDGECFVIETLTGSHK 60
Db 256 SSSSATTTPETSTSPKPHHTTSTYSTERSEHFKPCRDKDLAYCLNDGECFVIETLTGSHK 315

Qy 61 HCRCKEGYQGVRCDDQFLPKTDSILSDP-NHLGIEFMESEVYQVLSISCIIFGIVIG 119
Db 316 HCRCKEGYQGVRCDDQFLPKTDSILSDP-TDHLGIEFMESEVYQVLSISCIIFGIVIG 375

Qy 120 MFCAAFYFKSRNITANSVSEE 141
Db 376 MFCAAFYFKSKQ--AKQIQEQ 395

RESULT 4
US-10-136-573A-23
; Sequence 23, Application US/10136573A
; Publication No. US20020161200A1
; GENERAL INFORMATION:
; APPLICANT: Godowski, Paul J.
; APPLICANT: Zhang, Dong Xiao
; TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related Ligands and
; Uses Therefor
; FILE REFERENCE: P1084R1C2

;; CURRENT APPLICATION NUMBER: US/10/136,573A
;; CURRENT FILING DATE: 2002-04-29
;; PRIOR APPLICATION NUMBER: US 09/480,977
;; PRIOR FILING DATE: 2000-01-11
;; PRIOR APPLICATION NUMBER: US 08/899,437
;; PRIOR FILING DATE: 1997-07-24
;; PRIOR APPLICATION NUMBER: US 60/052,019
;; PRIOR FILING DATE: 1997-07-09
;; NUMBER OF SEQ ID NOS: 23
;; SEQ ID NO 23
;; LENGTH: 696
;; TYPE: PRT
;; ORGANISM: Homo sapiens
US-10-136-573A-23

Query Match 81.9%; Score 689.5; DB 13; Length 696;
Best Local Similarity 92.3%; Pred. No. 2.1e-63;
Matches 131; Conservative 4; Mismatches 4; Indels 3; Gaps 2;
Qy 1 SSSSSATTTTPTSTSPKFTTSTYSTERSEHFPCRDKDLAYCLNDGECFVIETLTGSHK 60
Db 256 SSSSSATTTTPTSTSPKFTTSTYSTERSEHFPCRDKDLAYCLNDGECFVIETLTGSHK 315
Qy 61 HCRCKEGVQVRCQDFLPKTDLSIDP-NHLGIFMESEEVYQKVLISICIIIFGIVVG 119
Db 316 HCRCKEGVQVRCQDFLPKTDLSIDP-NHLGIFMESEEVYQKVLISICIIIFGIVVG 375
Qy 120 MFCAAFYFKSKRNITANSVSEE 141
Db 376 MFCAAFYFKSKKQ--AKQIQEQ 395

RESULT 5
US-10-215-862-23
;; Sequence 23, Application US/10215862
;; Publication No. US2003036166A1
;; GENERAL INFORMATION:
;; APPLICANT: Godowski, Paul J.
;; APPLICANT: Mark, Melanie Rose
;; APPLICANT: Zhang, Dong Xiao
;; TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related Ligands and
;; TITLE OF INVENTION: Uses Therefor
;; FILE REFERENCE: P1084R1D2C1
;; CURRENT APPLICATION NUMBER: US/10/215,862
;; CURRENT FILING DATE: 2002-09-24
;; PRIOR APPLICATION NUMBER: US 09/126,663
;; PRIOR FILING DATE: 1998-07-30
;; PRIOR APPLICATION NUMBER: US 08/899,437
;; PRIOR FILING DATE: 1997-07-24
;; PRIOR APPLICATION NUMBER: US 60/052,019
;; PRIOR FILING DATE: 1997-07-09
;; NUMBER OF SEQ ID NOS: 23
;; SEQ ID NO 23
;; LENGTH: 696
;; TYPE: PRT
;; ORGANISM: Homo sapiens
US-10-215-862-23

Query Match 81.9%; Score 689.5; DB 14; Length 696;
Best Local Similarity 92.3%; Pred. No. 2.1e-63;
Matches 131; Conservative 4; Mismatches 4; Indels 3; Gaps 2;
Qy 1 SSSSSATTTTPTSTSPKFTTSTYSTERSEHFPCRDKDLAYCLNDGECFVIETLTGSHK 60
Db 256 SSSSSATTTTPTSTSPKFTTSTYSTERSEHFPCRDKDLAYCLNDGECFVIETLTGSHK 315
Qy 61 HCRCKEGVQVRCQDFLPKTDLSIDP-NHLGIFMESEEVYQKVLISICIIIFGIVVG 119
Db 316 HCRCKEGVQVRCQDFLPKTDLSIDP-NHLGIFMESEEVYQKVLISICIIIFGIVVG 375
Qy 120 MFCAAFYFKSKRNITANSVSEE 141
Db 376 MFCAAFYFKSKKQ--AKQIQEQ 395

RESULT 6
US-10-944-116-23
;; Sequence 23, Application US/10944116
;; Publication No. US20050048622A1
;; GENERAL INFORMATION:
;; APPLICANT: Godowski, Paul J.
;; APPLICANT: Mark, Melanie Rose
;; APPLICANT: Zhang, Dong Xiao
;; TITLE OF INVENTION: ErbB4 Receptor-Specific Neuregulin Related
;; TITLE OF INVENTION: Ligands and Uses Therefor
;; NUMBER OF SEQUENCES: 23
;; CORRESPONDENCE ADDRESS:
;; ADDRESSEE: Genentech, Inc.
;; STREET: 1 DNA Way
;; CITY: South San Francisco
;; STATE: California
;; COUNTRY: USA
;; ZIP: 94080
;; COMPUTER READABLE FORM:
;; MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
;; OPERATING SYSTEM: PC-DOS/MS-DOS
;; SOFTWARE: WinPatIn (Genentech)
;; CURRENT APPLICATION DATA:
;; APPLICATION NUMBER: US/10/944,116
;; FILING DATE: 17-Sep-2004
;; CLASSIFICATION: <Unknown>
;; PRIOR APPLICATION DATA:
;; APPLICATION NUMBER: 09/877665
;; FILING DATE: 08-JUN-2001
;; APPLICATION NUMBER: 09/109206
;; FILING DATE: 30-JUN-1998
;; APPLICATION NUMBER: 60/052019
;; FILING DATE: 09-JUL-1997
;; ATTORNEY/AGENT INFORMATION:
;; NAME: Conley, Deirdre L.
;; REGISTRATION NUMBER: 36,487
;; REFERENCE/DOCKET NUMBER: P1084R1-1C2
;; TELECOMMUNICATION INFORMATION:
;; TELEPHONE: 650/225-2066
;; TELEFAX: 650/952-9881
;; INFORMATION FOR SEQ ID NO: 23:
;; SEQUENCE CHARACTERISTICS:
;; LENGTH: 696 amino acids
;; TYPE: Amino Acid
;; TOPOLOGY: Linear
;; FEATURE:
;; NAME/KEY: Human NRG3B2
;; LOCATION: 1-696
;; IDENTIFICATION METHOD:
;; OTHER INFORMATION:
;; SEQUENCE DESCRIPTION: SEQ ID NO: 23:
US-10-944-116-23

Query Match 81.9%; Score 689.5; DB 17; Length 696;
Best Local Similarity 92.3%; Pred. No. 2.1e-63;
Matches 131; Conservative 4; Mismatches 4; Indels 3; Gaps 2;
Qy 1 SSSSSATTTTPTSTSPKFTTSTYSTERSEHFPCRDKDLAYCLNDGECFVIETLTGSHK 60
Db 256 SSSSSATTTTPTSTSPKFTTSTYSTERSEHFPCRDKDLAYCLNDGECFVIETLTGSHK 315
Qy 61 HCRCKEGVQVRCQDFLPKTDLSIDP-NHLGIFMESEEVYQKVLISICIIIFGIVVG 119
Db 316 HCRCKEGVQVRCQDFLPKTDLSIDP-NHLGIFMESEEVYQKVLISICIIIFGIVVG 375
Qy 120 MFCAAFYFKSKRNITANSVSEE 141
Db 376 MFCAAFYFKSKKQ--AKQIQEQ 395

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RESULT 7
US-11-035-787-23
; Sequence 23, Application US/11035787
; Publication No. US20050136467A1
; GENERAL INFORMATION:
; APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
; TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related
; Ligands and Uses Therefor
; NUMBER OF SEQUENCES: 23
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Genentech, Inc.
; STREET: 1 DNA Way
; CITY: South San Francisco
; STATE: California
; COUNTRY: USA
; ZIP: 94080
; COMPUTER READABLE FORM:
; MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: WinPatIn (Genentech)
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/11/035,787
; FILING DATE: 14-Jan-2005
; CLASSIFICATION: <Unknown>
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 09/480,977
; FILING DATE: 11-Jan-2000
; APPLICATION NUMBER: 08/899,437
; FILING DATE: 24-Jul-1997
; ATTORNEY/AGENT INFORMATION:
; NAME: Conley, Deirdre L.
; REGISTRATION NUMBER: 36,487
; REFERENCE/DOCKET NUMBER: PI084R1C3
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 650/225-2066
; TELEFAX: 650/952-9881
; INFORMATION FOR SEQ ID NO: 23:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 696 amino acids
; TYPE: Amino Acid
; TOPOLOGY: Linear
; FEATURE:
; NAME/KEY: Human NRG3B2
; LOCATION: 1-696
; IDENTIFICATION METHOD:
; OTHER INFORMATION:
; SEQUENCE DESCRIPTION: SEQ ID NO: 23:
US-11-035-787-23

Query Match      81.9%; Score 689.5; DB 20; Length 696;
Best Local Similarity 92.3%; Pred. No. 2.1e-63;
Matches 131; Conservative 4; Mismatches 4; Indels 3; Gaps 2;

QY 1 SSSSSATTTTPTSTSPKFTHTTSTERSHFKPCRDKDLAYCLNDGECFVIETLTGSHK 60
Db 256 SSSSSATTTTPTSTSPKFTHTTSTERSHFKPCRDKDLAYCLNDGECFVIETLTGSHK 315

QY 61 HCRCKEGYQGVRCDOFLPKTDSILSDP-NHLGIEFMESEVYQVLSISCIIFGIVIG 119
Db 316 HCRCKEGYQGVRCDOFLPKTDSILSDP-TDHLGIEFMESEVYQVLSISCIIFGIVIG 375

QY 120 MFCAAFYFKSKRNITANSVSEE 141
Db 376 MFCAAFYFKSKQ--AKQIQEQ 395

RESULT 8
US-09-817-647-6
; Sequence 6, Application US/09817647
; Patent No. US2002008229A1
; GENERAL INFORMATION:
; APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
; TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related
; Ligands and Uses Therefor
; NUMBER OF SEQUENCES: 23
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Genentech, Inc.
; STREET: 1 DNA Way
; CITY: South San Francisco
; STATE: California
; ZIP: 94080
; COMPUTER READABLE FORM:
; MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: WinPatIn (Genentech)
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/09/817,647
; FILING DATE: 26-Mar-2001
; CLASSIFICATION: <Unknown>
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 09/107,979
; FILING DATE: <Unknown>
; ATTORNEY/AGENT INFORMATION:
; NAME: Conley, Deirdre L.
; REGISTRATION NUMBER: 36,487
; REFERENCE/DOCKET NUMBER: PI084R1-2
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 650/225-2066
; TELEFAX: 650/952-9881
; INFORMATION FOR SEQ ID NO: 6:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 720 amino acids
; TYPE: Amino Acid
; TOPOLOGY: Linear
; FEATURE:
; NAME/KEY: hNRG3B1 amino acid sequence
; LOCATION: 1-720
; IDENTIFICATION METHOD:
; OTHER INFORMATION:
; SEQUENCE DESCRIPTION: SEQ ID NO: 6:
US-09-817-647-6

Query Match      81.9%; Score 689.5; DB 9; Length 720;
Best Local Similarity 92.3%; Pred. No. 2.2e-63;
Matches 131; Conservative 4; Mismatches 4; Indels 3; Gaps 2;

QY 1 SSSSSATTTTPTSTSPKFTHTTSTERSHFKPCRDKDLAYCLNDGECFVIETLTGSHK 60
Db 256 SSSSSATTTTPTSTSPKFTHTTSTERSHFKPCRDKDLAYCLNDGECFVIETLTGSHK 315

QY 61 HCRCKEGYQGVRCDOFLPKTDSILSDP-NHLGIEFMESEVYQVLSISCIIFGIVIG 119
Db 316 HCRCKEGYQGVRCDOFLPKTDSILSDP-TDHLGIEFMESEVYQVLSISCIIFGIVIG 375

QY 120 MFCAAFYFKSKRNITANSVSEE 141
Db 376 MFCAAFYFKSKQ--AKQIQEQ 395

RESULT 9
US-09-877-665-6
; Sequence 6, Application US/09877665
; Patent No. US20020164680A1
; GENERAL INFORMATION:
; APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
; TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related
; Ligands and Uses Therefor
; NUMBER OF SEQUENCES: 23
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Genentech, Inc.
; STREET: 1 DNA Way
; CITY: South San Francisco
; STATE: California
```

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;
; COUNTRY: USA
; ZIP: 94080
;
; COMPUTER READABLE FORM:
; MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: WinPatIn (Genentech)
;
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/09/877,665
; FILING DATE: 08-Jun-2001
; CLASSIFICATION: <Unknown>
;
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US/09/109,206
; FILING DATE: 30-Jun-1998
;
; ATTORNEY/AGENT INFORMATION:
; NAME: Conley, Deirdre L.
; REGISTRATION NUMBER: 36,487
; REFERENCE/DOCKET NUMBER: P1084R1-1
;
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 650/225-2066
; TELEFAX: 650/952-9881
;
; INFORMATION FOR SEQ ID NO: 6:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 720 amino acids
; TYPE: Amino Acid
; TOPOLOGY: Linear
;
; FEATURE:
; NAME/KEY: hNRG3B1 amino acid sequence
; LOCATION: 1-720
; IDENTIFICATION METHOD:
; OTHER INFORMATION:
;
; SEQUENCE DESCRIPTION: SEQ ID NO: 6:
US-09-877-665-6

Query Match      81.9%; Score 689.5; DB 9; Length 720;
Best Local Similarity 92.3%; Pred. No. 2.2e-63;
Matches 131; Conservative 4; Mismatches 4; Indels 3; Gaps 2;

Qy 1 SSSSSATTTTPTSTSPKPHHTTSTYSTERSEHFPCRDKDLAYCLNDGECFVIETLTGSHK 60
Db 256 SSSSSATTTTPTSTSPKPHHTTSTYSTERSEHFPCRDKDLAYCLNDGECFVIETLTGSHK 315

Qy 61 HCRCKEGYQGVRCDFLPKTDLSILSDP-NHLGIFMESEEVYQROVLSICIIIFGIVIG 119
Db 316 HCRCKEGYQGVRCDFLPKTDLSILSDP-DHILGIFMESEEVYQROVLSICIIIFGIVIG 375

Qy 120 MFCAAFYFKSKRNITANSVSEE 141
Db 376 MFCAAFYFKSKKQ--AKQIQEQ 395

RESULT 10
US-10-136-573A-6
; Sequence 6, Application US/10136573A
; Publication No. US20020161200A1
; GENERAL INFORMATION:
; APPLICANT: Godowski, Paul J.
; APPLICANT: Mark, Melanie Rose
; APPLICANT: Zhang, Dong Xiao
; TITLE OF INVENTION: Erbb Receptor-Specific Neuregulin Related Ligands and
; FILE REFERENCE: P1084R1C2
; CURRENT APPLICATION NUMBER: US/10/136,573A
; CURRENT FILING DATE: 2002-04-29
; PRIOR FILING DATE: 2000-01-11
; PRIOR APPLICATION NUMBER: US 09/480,977
; PRIOR FILING DATE: 1997-07-24
; PRIOR APPLICATION NUMBER: US 08/899,437
; PRIOR FILING DATE: 1997-07-09
; PRIOR APPLICATION NUMBER: US 60/052,019
; NUMBER OF SEQ ID NOS: 23
; SEQ ID NO 6
; LENGTH: 720
; TYPE: PRT
; ORGANISM: Homo sapiens
US-10-136-573A-6

Query Match      81.9%; Score 689.5; DB 9; Length 720;
Best Local Similarity 92.3%; Pred. No. 2.2e-63;
Matches 131; Conservative 4; Mismatches 4; Indels 3; Gaps 2;

Qy 1 SSSSSATTTTPTSTSPKPHHTTSTYSTERSEHFPCRDKDLAYCLNDGECFVIETLTGSHK 60
Db 256 SSSSSATTTTPTSTSPKPHHTTSTYSTERSEHFPCRDKDLAYCLNDGECFVIETLTGSHK 315

Qy 61 HCRCKEGYQGVRCDFLPKTDLSILSDP-NHLGIFMESEEVYQROVLSICIIIFGIVIG 119
Db 316 HCRCKEGYQGVRCDFLPKTDLSILSDP-DHILGIFMESEEVYQROVLSICIIIFGIVIG 375

Qy 120 MFCAAFYFKSKRNITANSVSEE 141
Db 376 MFCAAFYFKSKKQ--AKQIQEQ 395

RESULT 10
US-10-136-573A-6
; Sequence 6, Application US/10136573A
; Publication No. US20020161200A1
; GENERAL INFORMATION:
; APPLICANT: Godowski, Paul J.
; APPLICANT: Mark, Melanie Rose
; APPLICANT: Zhang, Dong Xiao
; TITLE OF INVENTION: Erbb Receptor-Specific Neuregulin Related Ligands and
; FILE REFERENCE: P1084R1C2
; CURRENT APPLICATION NUMBER: US/10/136,573A
; CURRENT FILING DATE: 2002-04-29
; PRIOR FILING DATE: 2000-01-11
; PRIOR APPLICATION NUMBER: US 09/480,977
; PRIOR FILING DATE: 1997-07-24
; PRIOR APPLICATION NUMBER: US 08/899,437
; PRIOR FILING DATE: 1997-07-09
; PRIOR APPLICATION NUMBER: US 60/052,019
; NUMBER OF SEQ ID NOS: 23
; SEQ ID NO 6
; LENGTH: 720
; TYPE: PRT
; ORGANISM: Homo sapiens
US-10-136-573A-6

Query Match      81.9%; Score 689.5; DB 13; Length 720;
Best Local Similarity 92.3%; Pred. No. 2.2e-63;
Matches 131; Conservative 4; Mismatches 4; Indels 3; Gaps 2;

Qy 1 SSSSSATTTTPTSTSPKPHHTTSTYSTERSEHFPCRDKDLAYCLNDGECFVIETLTGSHK 60
Db 256 SSSSSATTTTPTSTSPKPHHTTSTYSTERSEHFPCRDKDLAYCLNDGECFVIETLTGSHK 315

Qy 61 HCRCKEGYQGVRCDFLPKTDLSILSDP-NHLGIFMESEEVYQROVLSICIIIFGIVIG 119
Db 316 HCRCKEGYQGVRCDFLPKTDLSILSDP-DHILGIFMESEEVYQROVLSICIIIFGIVIG 375

Qy 120 MFCAAFYFKSKRNITANSVSEE 141
Db 376 MFCAAFYFKSKKQ--AKQIQEQ 395

RESULT 12
US-10-944-116-6
; Sequence 6, Application US/10944116
; Publication No. US20050048622A1
; GENERAL INFORMATION:
; APPLICANT: Godowski, Paul J.
; APPLICANT: Mark, Melanie Rose
; APPLICANT: Zhang, Dong Xiao
; TITLE OF INVENTION: Erbb4 Receptor-Specific Neuregulin Related
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; TYPE: PRT
; ORGANISM: Homo sapiens
US-10-136-573A-6

Query Match      81.9%; Score 689.5; DB 13; Length 720;
Best Local Similarity 92.3%; Pred. No. 2.2e-63;
Matches 131; Conservative 4; Mismatches 4; Indels 3; Gaps 2;

Qy 1 SSSSSATTTTPTSTSPKPHHTTSTYSTERSEHFPCRDKDLAYCLNDGECFVIETLTGSHK 60
Db 256 SSSSSATTTTPTSTSPKPHHTTSTYSTERSEHFPCRDKDLAYCLNDGECFVIETLTGSHK 315

Qy 61 HCRCKEGYQGVRCDFLPKTDLSILSDP-NHLGIFMESEEVYQROVLSICIIIFGIVIG 119
Db 316 HCRCKEGYQGVRCDFLPKTDLSILSDP-DHILGIFMESEEVYQROVLSICIIIFGIVIG 375

Qy 120 MFCAAFYFKSKRNITANSVSEE 141
Db 376 MFCAAFYFKSKKQ--AKQIQEQ 395

RESULT 11
US-10-215-862-6
; Sequence 6, Application US/10215862
; Publication No. US20030036166A1
; GENERAL INFORMATION:
; APPLICANT: Godowski, Paul J.
; APPLICANT: Mark, Melanie Rose
; APPLICANT: Zhang, Dong Xiao
; TITLE OF INVENTION: Erbb Receptor-Specific Neuregulin Related Ligands and
; TITLE OF INVENTION: Uses Therefor
; FILE REFERENCE: P1084R1D2C1
; CURRENT APPLICATION NUMBER: US/10/215,862
; CURRENT FILING DATE: 2002-09-24
; PRIOR APPLICATION NUMBER: US 09/126,663
; PRIOR FILING DATE: 1998-07-30
; PRIOR APPLICATION NUMBER: US 08/899,437
; PRIOR FILING DATE: 1997-07-24
; PRIOR APPLICATION NUMBER: US 60/052,019
; PRIOR FILING DATE: 1997-07-09
; NUMBER OF SEQ ID NOS: 23
; SEQ ID NO 6
; LENGTH: 720
; TYPE: PRT
; ORGANISM: Homo sapiens
US-10-215-862-6

Query Match      81.9%; Score 689.5; DB 14; Length 720;
Best Local Similarity 92.3%; Pred. No. 2.2e-63;
Matches 131; Conservative 4; Mismatches 4; Indels 3; Gaps 2;

Qy 1 SSSSSATTTTPTSTSPKPHHTTSTYSTERSEHFPCRDKDLAYCLNDGECFVIETLTGSHK 60
Db 256 SSSSSATTTTPTSTSPKPHHTTSTYSTERSEHFPCRDKDLAYCLNDGECFVIETLTGSHK 315

Qy 61 HCRCKEGYQGVRCDFLPKTDLSILSDP-NHLGIFMESEEVYQROVLSICIIIFGIVIG 119
Db 316 HCRCKEGYQGVRCDFLPKTDLSILSDP-DHILGIFMESEEVYQROVLSICIIIFGIVIG 375

Qy 120 MFCAAFYFKSKRNITANSVSEE 141
Db 376 MFCAAFYFKSKKQ--AKQIQEQ 395

RESULT 12
US-10-944-116-6
; Sequence 6, Application US/10944116
; Publication No. US20050048622A1
; GENERAL INFORMATION:
; APPLICANT: Godowski, Paul J.
; APPLICANT: Mark, Melanie Rose
; APPLICANT: Zhang, Dong Xiao
; TITLE OF INVENTION: Erbb4 Receptor-Specific Neuregulin Related
```

```

; STREET: 1 DNA Way
; CITY: South San Francisco
; STATE: California
; COUNTRY: USA
; ZIP: 94080
;
; COMPUTER READABLE FORM:
; MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: WinPatIn (Genentech)
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/11/035,787
; FILING DATE: 14-Jan-2005
; CLASSIFICATION: <Unknown>
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 09/480,977
; FILING DATE: 11-Jan-2000
; APPLICATION NUMBER: 08/899,437
; FILING DATE: 24-Jul-1997
; ATTORNEY/AGENT INFORMATION:
; NAME: Conley, Deirdre L.
; REGISTRATION NUMBER: 36,487
; REFERENCE/DOCKET NUMBER: F1084R1C3
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 650/225-2066
; TELEFAX: 650/952-9881
; INFORMATION FOR SEQ ID NO: 6:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 720 amino acids
; TYPE: Amino Acid
; TOPOLOGY: Linear
;
; FEATURE:
; NAME/KEY: hNRG3B1 amino acid sequence
; LOCATION: 1-720
; IDENTIFICATION METHOD:
; OTHER INFORMATION:
; SEQUENCE DESCRIPTION: SEQ ID NO: 6:
;
; US-11-035-787-6
;
Query Match      81.9%; Score 689.5; DB 20; I
Best Local Similarity 92.3%; Pred. No. 2.2e-63;
Matches 131; Conservative 4; Mismatches 4; I
;
Qy      1  SSSSSATTTTPTSTSGPKHHTTTTSTPSEHFKPCRCDKOLAY
Db      256 SSSSSATTTTPTSTSGPKHHTTTTSTPSEHFKPCRCDKOLAY
;
Qy      61  HCRCKEGYGVRCDFLPKXTDSLSDP-NHLGTEFMESEVY
Db      316 HCRCKEGYGVRCDFLPKXTDSLSDP-DHLGLETFMESEVY
;
Qy      120 MFCAAFYFKSKRNITANSVSEE 141
Db      376 MFCAAFYFKSKQ--AKQIQEQ 395
;
RESULT 14
US-10-609-370-22
; Sequence 22, Application US/10609370
; Publication No. US20040048295A1
; GENERAL INFORMATION:
; APPLICANT: Young et al.
; TITLE OF INVENTION: Heregulin-Like Factor
; FILE REFERENCE: PF383D1
; CURRENT APPLICATION NUMBER: US/10/609,370
; CURRENT FILING DATE: 2003-07-01
; PRIOR APPLICATION NUMBER: 09/097,681
; PRIOR FILING DATE: 1998-06-16
; PRIOR APPLICATION NUMBER: 60/049,942
; PRIOR FILING DATE: 1997-06-17
; NUMBER OF SEQ ID NOS: 22
; SOFTWARE: PatentIn version 3.2
; SEQ ID NO 22

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; LENGTH: 720
; TYPE: PRT
; ORGANISM: Homo sapiens
US-10-609-370-22

Query Match      81.5%; Score 686.5; DB 15; Length 720;
Best Local Similarity 91.5%; Pred. No. 4.5e-63;
Matches 130; Conservative 5; Mismatches 4; Indels 3; Gaps 2;

Qy 1 SSSSATTTPETSTSPKPHHTTTTSTERSEHFKPCRDKDLAYCLNDGECFVIETLTGSHK 60
Db 256 SSSSSSTTTTPTSTSPKPHHTTTTSTERSEHFKPCRDKDLAYCLNDGECFVIETLTGSHK 315

Qy 61 HCRCKEGYQVRCDOFLPKTDSILSDP-NHLGIEFMESEEVYQROVLSTISCIIFGIVIVGM 119
Db 316 HCRCKEGYQVRCDOFLPKTDSILSDP-DHLGIEFMESEEVYQROVLSTISCIIFGIVIVGM 375

Qy 120 MCAAIFYFKSKRNITANSVSE 141
Db 376 MCAAIFYFKSKKQ--AKQIQEQ 395

RESULT 15
US-09-817-647-2
; Sequence 2, Application US/09817647
; Patent No. US20020082229A1
; GENERAL INFORMATION:
; APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
; TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related
; NUMBER OF SEQUENCES: 23
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Genentech, Inc.
; STREET: 1 DNA Way
; CITY: South San Francisco
; STATE: California
; COUNTRY: USA
; ZIP: 94080
; COMPUTER READABLE FORM:
; MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: WinPatIn (Genentech)
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/09/817,647
; FILING DATE: 26-Mar-2001
; CLASSIFICATION: <unknown>
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 09/107,979
; FILING DATE: <unknown>
; ATTORNEY/AGENT INFORMATION:
; NAME: Conley, Deirdre L.
; REGISTRATION NUMBER: 36,487
; REFERENCE/DOCKET NUMBER: P1084R1-2
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 650/225-2066
; TELEFAX: 650/952-9881
; INFORMATION FOR SEQ ID NO: 2:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 713 amino acids
; TYPE: Amino Acid
; TOPOLOGY: Linear
; FEATURE:
; NAME/KEY: Mouse NRG3 (mNRG3)/amino acid seq.
; LOCATION: 1-713
; IDENTIFICATION METHOD:
; OTHER INFORMATION:
; SEQUENCE DESCRIPTION: SEQ ID NO: 2:
US-09-817-647-2

Query Match      80.1%; Score 674.5; DB 9; Length 713;
Best Local Similarity 90.7%; Pred. No. 8.1e-62;
Matches 127; Conservative 6; Mismatches 4; Indels 3; Gaps 2;
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Qy 2 SSSSATTTPETSTSPKPHHTTTTSTERSEHFKPCRDKDLAYCLNDGECFVIETLTGSHKH 61
Db 259 SSTSSTTTTPTSTSPKPHHTTTTSTERSEHFKPCRDKDLAYCLNDGECFVIETLTGSHKH 318

Qy 62 CRCKEGYQVRCDOFLPKTDSILSDP-NHLGIEFMESEEVYQROVLSTISCIIFGIVIVGM 120
Db 319 CRCKEGYQVRCDOFLPKTDSILSDP-DHLGIEFMESEEDVYQROVLSTISCIIFGIVIVGM 378

Qy 121 FCAAIFYFKSKRNITANSVSE 140
Db 379 FCAAIFYFKSKKQ--AKQIQEQ 396
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Search completed: July 13, 2005, 20:32:17
Job time : 165 secs

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GenCore version 5.1.6
Copyright (c) 1993 - 2005 Compugen Ltd.

OM protein - protein search, using sw model

Run on: July 13, 2005, 20:14:46 ; Search time 161 Seconds
(without alignments)
377.151 Million cell updates/sec

Title: us-10-609-370-2

Perfect score: 842
Sequence: 1 SSSSATTTPETSTSPKFH.....VSERWKGLSPQNLOQDK 157

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 2105692 seqs, 386760381 residues

Total number of hits satisfying chosen parameters: 2105692

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : A_Geneseq_16Dec04.*
1: Geneseqpl9808.*
2: Geneseqpl9908.*
3: Geneseqpl2000s.*
4: Geneseqpl2001s.*
5: Geneseqpl2002s.*
6: Geneseqpl2003as.*
7: Geneseqpl2003bs.*
8: Geneseqpl2004s.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	842	100.0	157	2	AAy05451 Human her
2	842	100.0	157	8	ADN48870 Human her
3	689.5	81.9	696	2	AAW97619 Human neu
4	689.5	81.9	696	5	ABG32080 Novel hum
5	689.5	81.9	720	2	AAW97618 Human neu
6	689.5	81.9	720	5	ABG32065 Human nov
7	686.5	81.5	720	2	AAy05452 Human her
8	686.5	81.5	720	8	ADN48890 Human her
9	674.5	80.1	713	2	AAW97617 Mouse neu
10	674.5	80.1	713	5	ABG32061 Mouse nov
11	658.5	78.2	502	5	ABB08776 Human neu
12	552.5	65.6	360	2	AAW97621 Human neu
13	539.5	64.1	362	2	AAW97620 Mouse neu
14	305	36.2	52	6	AAE336807 Human neu
15	282	33.5	48	5	AAE36046 Mouse NRG
16	277	32.9	47	2	AAW97622 Human neu
17	251.5	29.9	478	4	AAW48101 CRD domai
18	231.5	29.9	700	4	AAW67745 Amino aci
19	246.5	29.3	1070	4	AAE48099 Amino aci
20	246.5	29.3	1070	4	AAE08550 Chicken n
21	241.5	28.7	675	2	AAW74491 Amino aci
22	237.5	28.2	675	2	AAW74494 Amino aci
23	237.5	28.2	675	2	AAW74493 Amino aci
24	237.5	28.2	675	3	AAy71198 Human Her
25	237.5	28.2	675	3	AAy71203 Human Her

26	236.5	28.1	675	2	AAW74503 Amino aci
27	236.5	28.1	675	2	AAW74490 Amino aci
28	235.5	28.0	675	2	AAW74492 Amino aci
29	235.5	28.0	675	3	AAy71192 Human Her
30	235.5	28.0	675	3	AAy71186 Human Her
31	235.5	28.0	675	3	AAy71180 Human Her
32	235.5	28.0	675	3	AAy71193 Human Her
33	235.5	28.0	782	4	AAW67751 Amino aci
34	234.5	27.9	252	5	ABJ00036 Human neu
35	234.5	27.9	252	5	ABJ00074 Human neu
36	234.5	27.9	252	8	ADH77513 Human neu
37	234.5	27.9	254	4	AAW67926 Human NRG
38	234.5	27.9	254	4	AAW67964 Human NRG
39	234.5	27.9	548	5	ABJ00037 Human neu
40	234.5	27.9	548	5	ABJ00075 Human neu
41	234.5	27.9	548	8	ADH77514 Human neu
42	234.5	27.9	551	2	AAW68565 Human NDF
43	234.5	27.9	552	4	AAW67927 Human NRG
44	234.5	27.9	552	4	AAW67965 Human NRG
45	234.5	27.9	637	8	ADH77498 Human neu

ALIGNMENTS

RESULT 1

AAy05451

ID AAY05451 standard; protein; 157 AA.

AC AAY05451;

DT 06-JUL-1999 (first entry)

DE Human heregulin-like factor sequence.

KW Human heregulin-like factor; HLF; cell growth regulator; diagnosis;
neural system disorder; cancer.

OS Homo sapiens.

PN WO9857989-A1.

PD 23-DEC-1998.

PF 16-JUN-1998; 98WO-US012403.

PR 17-JUN-1997; 97US-0049942P.

PA (HUMA-) HUMAN GENOME SCI INC.

PI (GEOU) UNIV GEORGETOWN.

PI Young P, Ruben SM, King CR, Hijazi MW;

DR WPI; 1999-095327/08.

DR N-PSDB; AAX36423.

XX New isolated heregulin-like factor - used to develop products for the
diagnosis and treatment of disorders involving regulation of cell growth,
particularly cancers.

PS Claim 17; Page 86-87; 118pp; English.

XX This sequence is the human heregulin-like factor (HLF) of the invention.
The HLF is involved in the regulation of cell growth. Detection of
different levels of expression of the HLF gene can be used for the
diagnosis of disorders, e.g. in the neural system. In particular,
detection of different levels of HLF gene expression in cells or body
fluid of an individual can be used for diagnosing cancer. The products
can also be used in the treatment of disorders involving abnormal levels
of HLF activity

XX Sequence 157 AA;

SQ

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Query Match      100.0%; Score 842; DB 2; Length 157;
Best Local Similarity 100.0%; Pred. No. 1.6e-74;
Matches 157; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 SSSSSATTTTPESTSPKFTTTTSTERSHFPCRDKDLAYCLNDGECFVIETLTGSHK 60
   |||||
Db 1 SSSSSATTTTPESTSPKFTTTTSTERSHFPCRDKDLAYCLNDGECFVIETLTGSHK 60
   |||||

QY 61 HCRCKEGYQGVRCDFLPKTDLSILDPNHLGIEFMESEEVYQVLSISCIIFGIVGM 120
   |||||
Db 61 HCRCKEGYQGVRCDFLPKTDLSILDPNHLGIEFMESEEVYQVLSISCIIFGIVGM 120
   |||||

QY 121 FCAAFFKSKRNITANSVSEERWKGLPSPQPNLQDDK 157
   |||||
Db 121 FCAAFFKSKRNITANSVSEERWKGLPSPQPNLQDDK 157
   |||||

QY 121 FCAAFFKSKRNITANSVSEERWKGLPSPQPNLQDDK 157
   |||||
Db 121 FCAAFFKSKRNITANSVSEERWKGLPSPQPNLQDDK 157
   |||||

RESULT 3
AAW97619
ID AAW97619 standard; protein; 696 AA.
XX
AC AAW97619;
XX
DT 10-MAY-1999 (first entry)
XX
DE Human neuregulin related ligand NRG3 (splice variant).
XX
KW Neuregulin related ligand; NRG3; hNRG3B1; human; ErbB4 receptor;
signal transduction; nervous system disorder; neurodegeneration;
neuropathy; therapy; diagnosis; splice variant.
XX
OS Homo sapiens.
XX
FH Key
FT Domain
FT /note= "extracellular domain, specifically claimed in
Claim 5(a)"
FT Region
FT /note= "hydrophobic region"
FT Region
FT /note= "mucin-like Ser/Thr-rich region, contains sites
for O-linked glycosylation"
FT Domain
FT /note= "EGF-like domain"
FT Domain
FT /note= "transmembrane domain"
XX
PN WO9902681-A1.
XX
PD 21-JAN-1999.
XX
PF 30-JUN-1998; 98WO-US013411.
XX
PR 09-JUL-1997; 97US-0052019P.
XX
PR 24-JUL-1997; 97US-00899437.
XX
PA (GETH ) GENENTECH INC.
XX
PI Godowski PJ, Mark MR, Zhang D;
XX
DR WPI; 1999-120882/10.
XX
DR N-PSDB; AAX06989.
XX
PT New isolated neuregulin related ligand-3 - used to develop products for
treating nervous system disorders, e.g. stroke, ischaemia, infection,
malignancy, Alzheimer's disease or Down's syndrome.
XX
PS Example 1; Page 78-81; 101pp; English.
XX
CC This is the amino acid sequence of splice variant hNRG3B2 of human
neuregulin related ligand NRG3, a novel member of the epidermal growth
factor (EGF)-like family of protein ligands that binds to the ErbB4
receptor, but not to the ErbB2 or ErbB3 receptor, and which activates
ErbB4 receptor tyrosine phosphorylation. The sequence was deduced from
the nucleotide sequence of a cDNA clone (see AAX06989) from a foetal
brain library. hNRG3B2 lacks amino acids 529-552 of hNRG3B1 (see
AAW97618) but retains the EGF-like domain and is expected to exhibit
biological activity. The invention provides human and murine NRG3
polypeptides (see AAW97617), expression vectors, host cells and methods
for the recombinant production of NRG3a. The NRG3 polypeptides and
CC polynucleotides and can be used to enhance the survival, proliferation or
differentiation of cells having the ErbB4 receptor in vivo and in vitro.
CC
```

CC They can be used to prevent or treat damage to a nerve or damage to other
 CC NR3-expressing or NR3-responsive cells, e.g. brain, heart, or kidney
 CC cells. In particular, they can be used to treat diseases which involve
 CC neural cell growth such as demyelination, or damage or loss of glial
 CC cells (e.g. multiple sclerosis). They can be used to treat patients whose
 CC nervous system has been damaged by e.g. trauma, surgery, stroke,
 CC ischaemia, infection, metabolic disease, nutritional deficiency,
 CC malignancy, or toxic agents. NR3 can also be used to treat motor neuron
 CC disorders such as amyotrophic lateral sclerosis (Lou Gehrig's disease),
 CC Bell's palsy, conditions involving spinal muscular atrophy or paralysis,
 CC neurodegenerative disorders such as Alzheimer's disease, Parkinson's
 CC disease, epilepsy, multiple sclerosis, Huntington's chorea, Down's
 CC syndrome, nerve deafness, and Meniere's disease. They can also be used to
 CC treat neuropathies associated with systemic disease including post-polio
 CC syndrome, hereditary neuropathies including Charcot-Marie-Tooth disease,
 CC Refsum's disease, abetalipoproteinemia, Tangier disease, Krabbe's
 CC Sottas syndrome, to treat disease of skeletal muscle of smooth muscle,
 CC such as muscular dystrophy or diseases caused by skeletal or smooth
 CC muscle wasting. The products can also be used for detection, diagnosis,
 CC for the production of transgenic or knockout animals or for drug
 CC screening

XX SQ Sequence 696 AA;

Query Match 81.9%; Score 689.5; DB 2; Length 696;
 Best Local Similarity 92.3%; Pred. No. 9.7e-59;
 Matches 131; Conservative 4; Mismatches 4; Indels 3; Gaps 2;

Qy 1 SSSSSATTTTPTSTSPKPHHTTSTYSTERSEHFPCRDKDLAYCLNDGECFVIETLTGSHK 60
 Db SSSSSATTTTPTSTSPKPHHTTSTYSTERSEHFPCRDKDLAYCLNDGECFVIETLTGSHK 315
 Qy 61 HCRCKEGYQVRCQDFLPKTDLSILSDP-NHLGIFMESEEVYQVLSISCIIFGIIVIG 119
 Db 316 HCRCKEGYQVRCQDFLPKTDLSILSDPDLHLGIFMESEEVYQVLSISCIIFGIIVIG 375
 Qy 120 MFCAAFYFKSKRNITANSVSEE 141
 Db 376 MFCAAFYFKSKKQ--AKQIQEQ 395

RESULT 4
 ABG32080
 ID ABG32080 standard; protein; 696 AA.

XX AC ABG32080;
 XX DT 05-NOV-2002 (first entry)
 XX DE Novel human neuregulin related ligand NR3B2.

XX Neuregulin related ligand; NR3; neuroprotective; cell therapy;
 KW epidermal growth factor-like domain; EGF-like domain; Bell's palsy;
 KW ErbB4 receptor detection; amyotrophic lateral sclerosis; paralysis;
 KW Lou Gehrig's disease; spinal muscular atrophy; multiple sclerosis;
 KW neurodegenerative disorder; Alzheimer's disease; Parkinson's disease;
 KW epilepsy; Huntington's chorea; Down's syndrome; nerve deafness;
 KW Meniere's disease; neuropathy; distal sensorimotor neuropathy;
 KW autonomic neuropathy; hereditary neuropathy; Charcot-Marie-Tooth disease;
 KW Refsum's disease; Abetalipoproteinemia; Tangier disease;
 KW Krabbe's disease; Metachromatic leukodystrophy; Fabry's disease;
 KW Dejerine-Scottas syndrome; human; NR3B2.

OS Homo sapiens.
 XX US2002082229-A1.
 XX PD 27-JUN-2002.
 XX PP 26-MAR-2001; 2001US-00817647.
 XX PR 24-JUL-1997; 97US-0053641P.

PR 30-JUN-1998; 98US-00107979.

XX (GETH) GENENTECH INC.

XX Godowski PJ, Mark MR, Zhang D;

XX WPI; 2002-617760/66.

XX N-FSDB; ABK90730.

XX A new neuregulin related ligand designated NR3 has an epidermal growth
 factor-like domain and binds to ErbB4 receptor, and is useful to prevent
 or treat NR3 associated disorders, particularly nerve damage.

XX Example 1; Fig 4A-B; 60pp; English.

XX The invention describes a polypeptide comprising an amino acid sequence
 encoding an epidermal growth factor (EGF)-like domain, and having the
 binding characteristics of neuregulin related ligand (NRG3). NRG3
 polypeptide can be used to detect ErbB4 receptor in a mammalian tissue
 sample, and also to prevent or treat disorders associated with NR3 such
 as: amyotrophic lateral sclerosis (Lou Gehrig's disease), Bell's palsy,
 and various conditions involving spinal muscular atrophy or paralysis,
 CC neurodegenerative disorders such as Alzheimer's disease, Parkinson's
 CC disease, epilepsy, multiple sclerosis, Huntington's chorea, Down's
 CC syndrome, nerve deafness, Meniere's disease, neuropathy such as distal
 CC sensorimotor neuropathy or autonomic neuropathy, hereditary neuropathies
 CC such as Charcot-Marie-Tooth disease, Refsum's disease,
 CC Abetalipoproteinemia, Tangier disease, Krabbe's disease, Metachromatic
 CC leukodystrophy, Fabry's disease and Dejerine-Scottas syndrome. This is
 CC the amino acid sequence of the novel human neuregulin related ligand
 CC NR3B2

XX SQ Sequence 696 AA;

Query Match 81.9%; Score 689.5; DB 5; Length 696;
 Best Local Similarity 92.3%; Pred. No. 9.7e-59;
 Matches 131; Conservative 4; Mismatches 4; Indels 3; Gaps 2;

Qy 1 SSSSSATTTTPTSTSPKPHHTTSTYSTERSEHFPCRDKDLAYCLNDGECFVIETLTGSHK 60
 Db SSSSSATTTTPTSTSPKPHHTTSTYSTERSEHFPCRDKDLAYCLNDGECFVIETLTGSHK 315
 Qy 61 HCRCKEGYQVRCQDFLPKTDLSILSDP-NHLGIFMESEEVYQVLSISCIIFGIIVIG 119
 Db 316 HCRCKEGYQVRCQDFLPKTDLSILSDPDLHLGIFMESEEVYQVLSISCIIFGIIVIG 375
 Qy 120 MFCAAFYFKSKRNITANSVSEE 141
 Db 376 MFCAAFYFKSKKQ--AKQIQEQ 395

RESULT 5
 AAW97618
 ID AAW97618 standard; protein; 720 AA.

XX AC AAW97618;

XX DT 10-MAY-1999 (first entry)

XX DE Human neuregulin related ligand NRG3.

XX Neuregulin related ligand; NRG3; hNRG3B1; human; ErbB4 receptor;
 KW signal transduction; nervous system disorder; neurodegeneration;
 KW neuropathy; therapy; diagnosis.

XX OS Homo sapiens.

XX Key Location/Qualifiers
 FH 1..360
 Domain /note= "extracellular domain, specifically claimed in
 Claim 5(a)"

FT Region 66..91
 FT /note= "hydrophobic region"

FT Region 101..284
 FT /note= "mucin-like Ser/Thr-rich region, contains sites
 FT for O-linked glycosylation"
 FT 285..354
 FT /note= "EGF-like domain"
 FT 356..394
 FT /note= "transmembrane domain"
 XX WO9902681-A1.
 XX 21-JAN-1999.
 XX 30-JUN-1998; 98WO-US013411.
 XX 09-JUL-1997; 97US-0052019P.
 PR 24-JUL-1997; 97US-00899437.
 XX (GETH) GENENTECH INC.
 XX Godowski PJ, Mark MR, Zhang D;
 XX WPI; 1999-120882/10.
 DR N-PSDB; AAX06988.
 XX New isolated neuregulin related ligand-3 - used to develop products for
 PT treating nervous system disorders, e.g. stroke, ischaemia, infection,
 PT malignancy, Alzheimer's disease or Down's syndrome.
 XX Claim 5(b); Page 66-69; 101pp; English.
 XX This is the amino acid sequence of human neuregulin related ligand NRG3,
 CC a novel member of the epidermal growth factor (EGF)-like family of
 CC protein ligands that binds to the ErbB4 receptor, but not to the ErbB2 or
 CC ErbB3 receptor, and which activates ErbB4 receptor tyrosine
 CC phosphorylation. The sequence was deduced from the nucleotide sequence of
 CC a cDNA clone (see AAX06988) from a foetal brain library. The EGF-like
 CC domain of NRG3 is distinct from those of NRG1 or NRG2, and NRG3 displays
 CC receptor binding characteristics that are distinct from those of other
 CC neuregulins. An alternatively spliced form of human NRG3 is provided in
 CC AAX97619. The invention provides human and murine NRG3 polypeptides (see
 CC also AAX97617), expression vectors, host cells and methods for the
 CC recombinant production of NRG3s. The NRG3 polypeptides and
 CC polynucleotides and can be used to enhance the survival, proliferation or
 CC differentiation of cells having the ErbB4 receptor in vivo and in vitro.
 CC They can be used to prevent or treat damage to a nerve or damage to other
 CC NRG3-expressing or NRG3-responsive cells, e.g. brain, heart, or kidney
 CC cells. In particular, they can be used to treat diseases which involve
 CC neural cell growth such as demyelination, or damage or loss of glial
 CC cells (e.g. multiple sclerosis). They can be used to treat patients whose
 CC nervous system has been damaged by e.g. trauma, surgery, stroke,
 CC ischaemia, infection, metabolic disease, nutritional deficiency,
 CC malignancy, or toxic agents. NRG3 can also be used to treat motor neuron
 CC disorders such as amyotrophic lateral sclerosis (Lou Gehrig's disease),
 CC Bell's palsy, conditions involving spinal muscular atrophy or paralysis,
 CC neurodegenerative disorders such as Alzheimer's disease, Parkinson's
 CC disease, epilepsy, multiple sclerosis, Huntington's chorea, Down's
 CC syndrome, nerve deafness, and Meniere's disease. They can also be used to
 CC treat neuropathies associated with systemic disease including post-polio
 CC syndrome, hereditary neuropathies including Charcot-Marie-Tooth disease,
 CC Refsum's disease, abetalipoproteinemia, Tangier disease and Dejerine-
 CC Sottas syndrome, metachromatic leukodystrophy, Fabry's disease and Dejerine-
 CC such as muscular dystrophy or diseases caused by skeletal or smooth
 CC muscle wasting. The products can also be used for detection, diagnosis,
 CC for the production of transgenic or knockout animals or for drug
 CC screening
 XX Sequence 720 AA;
 XX Query Match 81.9%; Score 689.5; DB 2; Length 720;
 XX Best Local Similarity 92.3%; Pred. No. 1e-58; Indels 3; Gaps 2;
 XX Matches 131; Conservative 4; Mismatches 4;

QY 1 SSSSSATTTTPTSTSPKFTHTTSTERSSEHPKCRDKOLAYCLNDGECFVIELTGS HK 60
 Db 256 SSSSSATTTTPTSTSPKFTHTTSTERSSEHPKCRDKOLAYCLNDGECFVIELTGS HK 315
 QY 61 HCRCKEGYQGVRCQDFLPKTDLSILSDP-NHLGTFEFSSEVYQVLSISCIIFGIVIG 119
 Db 316 HCRCKEGYQGVRCQDFLPKTDLSILSDPDLHLGTFEFSSEVYQVLSISCIIFGIVIG 375
 QY 120 MFCAAFYFKSKRNITANSVSEE 141
 Db 376 MFCAAFYFKSKQ--AKQIQEQ 395
 RESULT 6
 ABG32065
 ID ABG32065 standard; protein; 720 AA.
 XX AC ABG32065;
 XX 05-NOV-2002 (first entry)
 XX Human novel neuregulin related ligand NRG3B1.
 XX Neuregulin related ligand; NRG3; neuroprotective; cell therapy;
 KW epidermal growth factor-like domain; EGF-like domain; Bell's palsy;
 KW ErbB4 receptor detection; amyotrophic lateral sclerosis; paralysis;
 KW Lou Gehrig's disease; spinal muscular atrophy; multiple sclerosis;
 KW neurodegenerative disorder; Alzheimer's disease; Parkinson's disease;
 KW epilepsy; Huntington's chorea; Down's syndrome; nerve deafness;
 KW Meniere's disease; neuropathy; distal sensorimotor neuropathy;
 KW autonomic neuropathy; hereditary neuropathy; Charcot-Marie-Tooth disease;
 KW Refsum's disease; Abetalipoproteinemia; Tangier disease;
 KW Krabbe's disease; Metachromatic leukodystrophy; Fabry's disease;
 KW Dejerine-Scottas syndrome; human; gene; ss; NRG3B1.
 XX Homo sapiens.
 XX Key Location/Qualifiers
 FT Domain 1..360
 FT /label= Extracellular domain
 FT /note= "Specifically claimed in claim 5"
 FT Domain 286..332
 FT /label= EGF-like domain
 FT /note= "Extracellular epidermal growth factor-like domain"
 XX US2002082229-A1.
 XX 27-JUN-2002.
 XX 26-MAR-2001; 2001US-00817647.
 XX 24-JUL-1997; 97US-0053641P.
 PR 30-JUN-1998; 98US-00107979.
 XX (GETH) GENENTECH INC.
 XX Godowski PJ, Mark MR, Zhang D;
 XX WPI; 2002-617760/66.
 DR N-PSDB; ABK90731.
 XX A new neuregulin related ligand designated NRG3 has an epidermal growth
 PT factor-like domain and binds to ErbB4 receptor, and is useful to prevent
 PT or treat NRG3 associated disorders, particularly nerve damage.
 XX Example 1; Fig 4A-B; 60pp; English.
 XX The invention describes a polypeptide comprising an amino acid sequence
 CC encoding an epidermal growth factor (EGF)-like domain, and having the
 CC binding characteristics of neuregulin related ligand (NRG3). NRG3
 CC polypeptide can be used to detect ErbB4 receptor in a mammalian tissue
 CC sample, and also to prevent or treat disorders associated with NRG3 such

as: amyotrophic lateral sclerosis (lou Gehrig's disease), Bell's palsy and various conditions involving spinal muscular atrophy or paralysis, neurodegenerative disorders such as Alzheimer's disease, Parkinson's disease, epilepsy, multiple sclerosis, Huntington's chorea, Down's syndrome, nerve deafness, Meniere's disease, neuropathy such as distal sensorimotor neuropathy or autonomic neuropathy, hereditary neuropathies such as Charcot-Marie-Tooth disease, Refsum's disease, Abetalipoproteinemia, Tangier disease, Krabbe's disease, Metachromatic leukodystrophy, Fabry's disease and Dejerine-Scottas syndrome. This is the amino acid sequence of the novel human heregulin related ligand (NRG3B1)

Query Match 81.9%; Score 689.5; DB 5; Length 720;
Best Local Similarity 92.3%; Pred. No. 1e-58;
Matches 131; Conservative 4; Mismatches 4; Indels 3; Gaps 2;

Qy 1 SSSSSATTTTPTSTSPKFTTTTSTERSSEHFPCRDKDLAYCLNDGECFVIETLTGSHK 60
Db 256 SSSSSATTTTPTSTSPKFTTTTSTERSSEHFPCRDKDLAYCLNDGECFVIETLTGSHK 315

Qy 61 HCRKEGYQGVRCQDFLPKTDLSILSDP-NHLGIEFMESEEVYQROVLISCIIFGIVIG 119
Db 316 HCRKEGYQGVRCQDFLPKTDLSILSDP-TDHLGIEFMESEEVYQROVLISCIIFGIVIG 375

Qy 120 MFCAAFYFKSKRNTANSVSEE 141
Db 376 MFCAAFYFKSKQ--AKQIQEQ 395

RESULT 7
ID AAY05452
AC AAY05452
DT 06-JUL-1999 (first entry)
DE Human heregulin-like factor sequence.
KW Human heregulin-like factor; HLF; cell growth regulator; diagnosis;
KW neural system disorder; cancer.
OS Homo sapiens.
PN WO9857989-A1.
PD 23-DEC-1998.
PF 16-JUN-1998; 98WO-US012403.
PR 17-JUN-1997; 97US-0049942P.
PA (HUMA-) HUMAN GENOME SCI INC.
PA (GEOU) UNIV GEORGETOWN.
PI Young P, Ruben SM, King CR, Hijazi MM;
XX WPI; 1999-095327/08.
XX New isolated heregulin-like factor - used to develop products for the
XX diagnosis and treatment of disorders involving regulation of cell growth,
XX particularly cancers.
XX Disclosure; Page 97-99; 118pp; English.

Qy 1 SSSSSATTTTPTSTSPKFTTTTSTERSSEHFPCRDKDLAYCLNDGECFVIETLTGSHK 60
Db 256 SSSSSATTTTPTSTSPKFTTTTSTERSSEHFPCRDKDLAYCLNDGECFVIETLTGSHK 315

Qy 61 HCRKEGYQGVRCQDFLPKTDLSILSDP-NHLGIEFMESEEVYQROVLISCIIFGIVIG 119
Db 316 HCRKEGYQGVRCQDFLPKTDLSILSDP-TDHLGIEFMESEEVYQROVLISCIIFGIVIG 375

Qy 120 MFCAAFYFKSKRNTANSVSEE 141
Db 376 MFCAAFYFKSKQ--AKQIQEQ 395

RESULT 7
ID AAY05452
AC AAY05452
DT 06-JUL-1999 (first entry)
DE Human heregulin-like factor sequence.
KW Human heregulin-like factor; HLF; cell growth regulator; diagnosis;
KW neural system disorder; cancer.
OS Homo sapiens.
PN WO9857989-A1.
PD 23-DEC-1998.
PF 16-JUN-1998; 98WO-US012403.
PR 17-JUN-1997; 97US-0049942P.
PA (HUMA-) HUMAN GENOME SCI INC.
PA (GEOU) UNIV GEORGETOWN.
PI Young P, Ruben SM, King CR, Hijazi MM;
XX WPI; 1999-095327/08.
XX New isolated heregulin-like factor - used to develop products for the
XX diagnosis and treatment of disorders involving regulation of cell growth,
XX particularly cancers.
XX Disclosure; Page 97-99; 118pp; English.

can also be used in the treatment of disorders involving abnormal levels of HLF activity

Query Match 81.5%; Score 686.5; DB 2; Length 720;
Best Local Similarity 91.5%; Pred. No. 2e-58;
Matches 130; Conservative 5; Mismatches 4; Indels 3; Gaps 2;

Qy 1 SSSSSATTTTPTSTSPKFTTTTSTERSSEHFPCRDKDLAYCLNDGECFVIETLTGSHK 60
Db 256 SSSSSATTTTPTSTSPKFTTTTSTERSSEHFPCRDKDLAYCLNDGECFVIETLTGSHK 315

Qy 61 HCRKEGYQGVRCQDFLPKTDLSILSDP-NHLGIEFMESEEVYQROVLISCIIFGIVIG 119
Db 316 HCRKEGYQGVRCQDFLPKTDLSILSDP-TDHLGIEFMESEEVYQROVLISCIIFGIVIG 375

Qy 120 MFCAAFYFKSKRNTANSVSEE 141
Db 376 MFCAAFYFKSKQ--AKQIQEQ 395

RESULT 8
ID ADN48890
AC ADN48890
DT 15-JUL-2004 (first entry)
DE Human heregulin-like factor (HLF) mutant protein.
KW HLF; heregulin-like factor; diagnosis; cancer; gene therapy; human;
KW mutant; mutein.
OS Homo sapiens.
OS Synthetic.
PN US6727077-B1.
PD 27-APR-2004.
PF 16-JUN-1998; 98US-00097681.
PR 17-JUN-1997; 97US-0049492P.
PA (HUMA-) HUMAN GENOME SCI INC.
PA (GEOU) UNIV GEORGETOWN MEDICAL CENT.
PI Young PE, King CR, Hijazi M, Ruben SM;
XX WPI; 2004-338520/31.
XX New heregulin-like factor (HLF) nucleic acid or polypeptide, useful for
XX preparing a composition for diagnosing or treating cancer.
XX Disclosure; SEQ ID NO 22; 48pp; English.

Qy 1 SSSSSATTTTPTSTSPKFTTTTSTERSSEHFPCRDKDLAYCLNDGECFVIETLTGSHK 60
Db 256 SSSSSATTTTPTSTSPKFTTTTSTERSSEHFPCRDKDLAYCLNDGECFVIETLTGSHK 315

Qy 61 HCRKEGYQGVRCQDFLPKTDLSILSDP-NHLGIEFMESEEVYQROVLISCIIFGIVIG 119
Db 316 HCRKEGYQGVRCQDFLPKTDLSILSDP-TDHLGIEFMESEEVYQROVLISCIIFGIVIG 375

Qy 120 MFCAAFYFKSKRNTANSVSEE 141
Db 376 MFCAAFYFKSKQ--AKQIQEQ 395

RESULT 8
ID ADN48890
AC ADN48890
DT 15-JUL-2004 (first entry)
DE Human heregulin-like factor (HLF) mutant protein.
KW HLF; heregulin-like factor; diagnosis; cancer; gene therapy; human;
KW mutant; mutein.
OS Homo sapiens.
OS Synthetic.
PN US6727077-B1.
PD 27-APR-2004.
PF 16-JUN-1998; 98US-00097681.
PR 17-JUN-1997; 97US-0049492P.
PA (HUMA-) HUMAN GENOME SCI INC.
PA (GEOU) UNIV GEORGETOWN MEDICAL CENT.
PI Young PE, King CR, Hijazi M, Ruben SM;
XX WPI; 2004-338520/31.
XX New heregulin-like factor (HLF) nucleic acid or polypeptide, useful for
XX preparing a composition for diagnosing or treating cancer.
XX Disclosure; SEQ ID NO 22; 48pp; English.

Qy 1 SSSSSATTTTPTSTSPKFTTTTSTERSSEHFPCRDKDLAYCLNDGECFVIETLTGSHK 60
Db 256 SSSSSATTTTPTSTSPKFTTTTSTERSSEHFPCRDKDLAYCLNDGECFVIETLTGSHK 315

Qy 61 HCRKEGYQGVRCQDFLPKTDLSILSDP-NHLGIEFMESEEVYQROVLISCIIFGIVIG 119
Db 316 HCRKEGYQGVRCQDFLPKTDLSILSDP-TDHLGIEFMESEEVYQROVLISCIIFGIVIG 375

Qy 120 MFCAAFYFKSKRNTANSVSEE 141
Db 376 MFCAAFYFKSKQ--AKQIQEQ 395

RESULT 8
ID ADN48890
AC ADN48890
DT 15-JUL-2004 (first entry)
DE Human heregulin-like factor (HLF) mutant protein.
KW HLF; heregulin-like factor; diagnosis; cancer; gene therapy; human;
KW mutant; mutein.
OS Homo sapiens.
OS Synthetic.
PN US6727077-B1.
PD 27-APR-2004.
PF 16-JUN-1998; 98US-00097681.
PR 17-JUN-1997; 97US-0049492P.
PA (HUMA-) HUMAN GENOME SCI INC.
PA (GEOU) UNIV GEORGETOWN MEDICAL CENT.
PI Young PE, King CR, Hijazi M, Ruben SM;
XX WPI; 2004-338520/31.
XX New heregulin-like factor (HLF) nucleic acid or polypeptide, useful for
XX preparing a composition for diagnosing or treating cancer.
XX Disclosure; SEQ ID NO 22; 48pp; English.


```
XX PF 30-JUN-1998; 98WO-US013411.
XX KW Mouse neuregulin related ligand NRG3 extracellular domain.
PR PR 09-JUL-1997; 97US-0052019P.
PR PR 24-JUL-1997; 97US-00899437.
XX KW Neuregulin related ligand; NRG3; mouse; ErbB4 receptor;
XX KW signal transduction; nervous system disorder; neurodegeneration;
XX KW neuropathy; therapy; diagnosis.
XX PA (GETH ) GENENTECH INC.
XX OS Mus sp.
XX PN WO9902681-A1.
XX PD 21-JAN-1999.
XX XX 30-JUN-1998; 98WO-US013411.
XX PF 09-JUL-1997; 97US-0052019P.
XX PR 24-JUL-1997; 97US-00899437.
XX XX (GETH ) GENENTECH INC.
XX PA Godowski PJ, Mark MR, Zhang D;
XX KW WPI; 1999-120882/10.
XX PD New isolated neuregulin related ligand-3 - used to develop products for
XX PT treating nervous system disorders, e.g. stroke, ischaemia, infection,
XX PT malignancy, Alzheimer's disease or Down's syndrome.
XX XX Claim 5(a); Page 69-70; 101pp; English.
XX CC This is the extracellular domain (ECD, aal-360 of human neuregulin
XX CC related ligand NRG3 (see also AA97618), a novel member of the epidermal
XX CC growth factor (EGF)-like family of protein ligands. NRG3 binds to the
XX CC ErbB4 receptor, but not to the ErbB2 or ErbB3 receptor, activates ErbB4
XX CC receptor tyrosine phosphorylation. The invention provides human and
XX CC murine polypeptides (see also AA97617) that have at least 75% homology
XX CC to the NRG3 ECD, as well as expression vectors, host cells and methods
XX CC for the recombinant production of novel NRG3s. The NRG3 polypeptides and
XX CC polynucleotides and can be used to enhance the survival, proliferation or
XX CC differentiation of cells having the ErbB4 receptor in vivo and in vitro.
XX CC They can be used to prevent or treat damage to a nerve or damage to other
XX CC NRG3-expressing or NRG3-responsive cells, e.g. brain, heart, or kidney
XX CC cells. In particular, they can be used to treat diseases which involve
XX CC neural cell growth such as demyelination, or damage or loss of glial
XX CC cells (e.g. multiple sclerosis). They can be used to treat patients whose
XX CC nervous system has been damaged by e.g. trauma, surgery, stroke,
XX CC ischaemia, infection, metabolic disease, nutritional deficiency,
XX CC malignancy, or toxic agents. NRG3 can also be used to treat motor neuron
XX CC disorders such as amyotrophic lateral sclerosis (Lou Gehrig's disease),
XX CC Bell's palsy, conditions involving spinal muscular atrophy or paralysis,
XX CC neurodegenerative disorders such as Alzheimer's disease, Parkinson's
XX CC disease, epilepsy, multiple sclerosis, Huntington's chorea, Down's
XX CC syndrome, nerve deafness, and Meniere's disease. They can also be used to
XX CC treat neuropathies associated with systemic disease including post-polio
XX CC syndrome, hereditary neuropathies including Charcot-Marie-Tooth disease,
XX CC Refsum's disease, abetalipoproteinemia, Tangier disease, Krabbe's
XX CC disease, metachromatic leukodystrophy, Fabry's disease and Dejerine-
XX CC Sottas syndrome, to treat disease of skeletal muscle of smooth muscle,
XX CC such as muscular dystrophy or diseases caused by skeletal or smooth
XX CC muscle wasting. The products can also be used for detection, diagnosis,
XX CC for the production of transgenic or knockout animals or for drug
XX CC screening
XX SQ Sequence 360 AA;
XX Query Match 65.6%; Score 552.5; DB 2; Length 360;
XX Best Local Similarity 98.1%; Pred. No. 1.2e-45;
XX Matches 103; Conservative 1; Mismatches 0; Indels 1; Gaps 1;
XX QY 1 SSSSATTTPETSTSPKFTTTTSTERSHFKPCRDKDLAYCLNDGECFVIETLTGSHK 60
XX DB 256 SSSSATTTPETSTSPKFTTTTSTERSHFKPCRDKDLAYCLNDGECFVIETLTGSHK 315
XX QY 61 HCRCKEGYQGVRCDDQFLPKTDSILSDP-NHLGIEFMESEVYQOR 104
XX DB 316 HCRCKEGYQGVRCDDQFLPKTDSILSDP-TDHLGIEFMESEVYQOR 360
XX RESULT 13
XX AA97620
XX ID AA97620 standard; protein; 362 AA.
XX AC AA97620;
XX XX
XX DT 10-MAY-1999 (first entry)
```


Qy 62 CRCKEGYQGVRCDFPLKPTDILSDP-NHLGIEFMESEVYQK 104
Db 319 CRCKEGYQGVRCDFPLKPTDILSDP-TDHLGIEFMESEVYQK 362

RESULT 14

AAE36807

ID AAE36807 standard; protein; 52 AA.

XX AC

XX AC AAE36807;

XX DT 07-AUG-2003 (first entry)

XX DE Human neuregulin 3 EGF-like domain.

XX KW Epidermal growth factor receptor; EGFR; therapy; psoriasis; carcinoma;
XX KW cancer; rhabdomyosarcoma; mesothelioma; melanoma; glioblastoma; human;
XX KW receptor; EGF; neuregulin 3.

XX OS Homo sapiens.

XX PN WO2003014159-A1.

XX PD 20-FEB-2003.

XX PF 05-AUG-2002; 2002WO-AU001042.

XX PR 03-AUG-2001; 2001AU-00006827.

XX PR 03-AUG-2001; 2001AU-00006828.

XX PR 01-NOV-2001; 2001US-0335393P.

XX PR 01-NOV-2001; 2001US-0336560P.

XX PR 31-MAY-2002; 2002AU-00002731.

XX PR 11-JUN-2002; 2002US-0388171P.

XX PA (CSIR) COMMONWEALTH SCI & IND RES ORG.

XX PA (BIOM-) BIOMOLECULAR RES INST LTD.

XX PA (HALL-) HALL INST MEDICAL RES WALTER & ELIZA.

XX PA (LUDW-) LUDWIG INST CANCER RES.

XX PI Adams TE, Burgess AW, Ellemann TC, Garrett TPJ, Jorissen RN;

XX PI Lou M, Lovrecz GO, McKern NM, Nice EC, Ward CW;

XX DR WPI; 2003-268181/26.

XX Selecting or designing compounds that interact with or inhibit formation
XX of active dimers of the EGF receptor family, and useful for the
XX prevention and treatment of disorders, such as psoriasis and cancer of
XX the breast, brain or colon.

XX PS Disclosure; Fig 2; 354pp; English.

XX The invention relates to a method of selecting or designing a compound
XX that interacts with or inhibits the formation of active dimers of a
XX receptor of the epidermal growth factor receptor (EGFR) family. The
XX methods and compositions of the invention are useful for the prevention
XX and treatment of disorders associated with signalling by a molecule of
XX the EGFR family such as psoriasis and cancer of the pancreas, breast,
XX brain, colon, prostate, ovary, cervix, lung, head and neck, melanoma,
XX rhabdomyosarcoma, mesothelioma, squamous carcinomas of the skin and
XX glioblastomas. The present sequence is epidermal growth factor (EGF) like
XX domain of human neuregulin 3 protein. This sequence is used to illustrate
XX the method of the invention

XX SQ Sequence 52 AA;

Query Match 36.2%; Score 305; DB 6; Length 52;

Best Local Similarity 100.0%; Pred. No. 2.2e-22;

Matches 52; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 30 EHFPCRDKDLAYCLNDGECFVIETLTGSHKHCRCKEGYQGVRCDFPLKPTD 81

Db 1 EHFPCRDKDLAYCLNDGECFVIETLTGSHKHCRCKEGYQGVRCDFPLKPTD 52

RESULT 15

AAG66046

ID AAG66046 standard; peptide; 48 AA.

XX AC

XX AC AAG66046;

XX DT 27-FEB-2002 (first entry)

XX DE Mouse NRG-3 EGF-like motif sequence.

XX KW ErbB-4; neuregulin-4; NRG-4; pro-NRG-4; neuroprotective; vulnary;
XX KW cerebroprotective; vasotropic; antiparkinsonian; anticonvulsant;
XX KW cytosstatic; nootropic; EGF; NRG-3.

XX OS Mus musculus.

XX PN WO200181540-A2.

XX PD 01-NOV-2001.

XX PF 20-APR-2001; 2001WO-IL000371.

XX PR 21-APR-2000; 2000US-00553769.

XX PA (YEDA) YEDA RES & DEV CO LTD.

XX PI Harari D, Yarden Y;

XX DR WPI; 2002-041398/05.

XX Novel ErbB-4 ligand, referred as neuregulin (NRG)-4 and polynucleotide
XX sequences encoding NRG-4, useful for upregulating or downregulating ErbB-
XX 4 receptor activity to treat Alzheimer's disease, stroke, gastric cancer.

XX PS Disclosure; Fig 1c; 153pp; English.

XX The invention relates to a novel ErbB-4 ligand, neuregulin-4 (NRG-4). NRG
XX -4 binds to mammalian ErbB-4 receptor and can be expressed by standard
XX recombinant methodology. Pharmaceutical compositions comprising NRG-4 are
XX useful for regulating an endogenous protein affecting ErbB-4 receptor
XX activity in vivo. They are also useful for treating or preventing a
XX disease condition or syndrome associated with dysregulation of an
XX endogenous protein affecting ErbB-4 receptor activity, e.g., amyotrophic
XX lateral sclerosis (Lou Gehrig's disease), Bell's palsy, spinal muscular
XX atrophy, brain trauma, stroke, ischemia, Alzheimer's disease, Parkinson's
XX disease, epilepsy, multiple sclerosis, Huntington's chorea, Down's
XX syndrome, nerve deafness, neuropathy, muscular dystrophy, extramammary
XX Paget's disease, gastric, pancreatic, prostate, breast and ovarian
XX cancer, cervical carcinoma, endometrial adenocarcinoma, pancreatic D
XX cells-somatostatinoma and Zollinger-Ellison syndrome. The agent comprised
XX in the pharmaceutical composition includes a polypeptide (e.g., a soluble
XX ligand binding domain of ErbB-4 i.e., IgB4; or a monoclonal, polyclonal,
XX humanized, single chain antibody or an immunoreactive derivative of an
XX antibody) capable of binding the endogenous protein affecting ErbB-4
XX receptor activity. Traceable synthetic/recombinant NRG-4-tagged molecules
XX can serve as a diagnostic tool in which cells binding NRG-4 can be
XX measured. Sequences AAG66044-53 represent the EGF-like motifs of various
XX growth factors

XX SQ Sequence 48 AA;

Query Match 33.5%; Score 282; DB 5; Length 48;

Best Local Similarity 100.0%; Pred. No. 3.7e-20;

Matches 48; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 30 EHFPCRDKDLAYCLNDGECFVIETLTGSHKHCRCKEGYQGVRCDFPL 77

Db 1 EHFPCRDKDLAYCLNDGECFVIETLTGSHKHCRCKEGYQGVRCDFPL 48

Search completed: July 13, 2005, 20:24:53

Job time : 163 secs

GenCore version 5.1.6
Copyright (c) 1993 - 2005 Compugen Ltd.

OM protein - protein search, using sw model

Run on: July 13, 2005, 20:18:32 ; Search time 38 Seconds
(without alignments)
397.527 Million cell updates/sec

Title: US-10-609-370-2
Perfect score: 842
Sequence: 1 SSSSATTPTSTSPKFKH.....VSEERWGLSPQEPNLOQDK 157

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 283416 seqs, 96216763 residues

Total number of hits satisfying chosen parameters: 283416

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : PIR 79.*
1: pir1.*
2: pir2.*
3: pir3.*
4: pir4.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	674.5	80.1	713	2 T44447	neuregulin-3 [impo
2	234.5	27.9	645	2 B43273	heregulin, splice
3	224.5	26.7	602	2 A45769	acetylcholine rece
4	203	24.1	639	2 I61719	neu differentiatio
5	201	23.9	462	2 I38404	neu differentiatio
6	201	23.9	640	2 A43273	heregulin precurs
7	199	23.6	868	2 JC5701	ErbB kinase activa
8	197.5	23.5	636	2 I61718	neu differentiatio
9	196.5	23.3	637	2 C43273	heregulin precurs
10	191.5	22.7	350	2 I38403	neu differentiatio
11	189.5	22.5	662	2 I61722	neu differentiatio
12	171	20.3	860	2 JC5702	ErbB kinase activa
13	166	19.7	850	2 JC5700	ErbB kinase activa
14	140	16.6	296	2 A56943	sensory/motor neur
15	137	16.3	125	2 I38405	neu differentiatio
16	128	15.2	241	2 S23359	glial growth facto
17	126	15.0	125	2 S62676	heregulin isoform
18	124.5	14.8	422	2 S32357	glial growth facto
19	123.5	14.7	230	2 A44074	probable EGF-like
20	123	14.6	175	2 I38408	neu differentiatio
21	123	14.6	241	2 D43273	heregulin precurs
22	121	14.4	230	2 A56210	neu differentiatio
23	111	13.2	177	2 A37408	betacellulin precu
24	111	13.2	294	2 A48844	TGF alpha-like pro
25	107.5	12.8	57	2 PC4415	ErbB kinase activa
26	105.5	12.5	162	2 S68401	epiregulin precurs
27	104.5	12.4	178	2 JC1467	betacellulin precu
28	101.5	12.1	142	1 WWV23C	growth factor - va
29	100.5	11.9	140	2 T30766	growth factor - va

30	99.5	11.8	140	1 WMV29	growth factor - va
31	99	11.8	264	2 T22380	hypothetical prote
32	99	11.8	2180	2 T29764	hypothetical prote
33	97.5	11.6	279	2 T16201	hypothetical prote
34	97	11.5	120	2 T34431	hypothetical prote
35	96.5	11.5	483	2 T24856	hypothetical prote
36	96.5	11.5	907	2 T27317	hypothetical prote
37	95.5	11.3	293	2 T40784	hypothetical zinc
38	95.5	11.3	1207	1 EGHU	epidermal growth f
39	94.5	11.2	520	2 G88846	protein T12A7.2 [i
40	93	11.0	1220	2 A56136	jagged protein pre
41	91.5	10.9	1133	1 EGRT	epidermal growth f
42	91	10.8	1217	1 EGMSMG	epidermal growth f
43	90.5	10.7	1643	2 T14274	versican precursor
44	90	10.7	861	2 A48825	Notch homolog Mocc
45	89	10.6	2139	2 A35672	crumbs protein - f

ALIGNMENTS

RESULT 1

T44447
neuregulin-3 [imported] - mouse
C:Species: Mus musculus (house mouse)
C:Date: 21-Jan-2000 #sequence_revision 21-Jan-2000 #text_change 09-Jul-2004
C:Accession: T44447
R:Zhang, D.; Sliwkowski, M.X.; Mark, M.; Frantz, G.; Akita, R.; Sun, Y.; Hillan, K.; Cro
Proc. Natl. Acad. Sci. U.S.A. 94, 9562-9567, 1997
A:Title: Neuregulin-3 (NRG3): A novel neural tissue-enriched protein that binds and acti
A:Reference number: 222773; MUID:97420720; PMID:9275162
A:Accession: T44447
A:Status: preliminary; translated from GB/EMBL/DBJ
A:Molecule type: mRNA
A:Residues: 1-713 <ZHA>
A:Cross-references: UNIPROT:O35181; EMBL:AF010130; NID:g2429163; PIDN:AAB70914.1; PID:g2
C:Genetics:
A:Gene: NRG3
C:Superfamily: mouse neuregulin-3

Query Match	80.1%	Score	674.5	DB 2	Length	713			
Best Local Similarity	90.7%	Pred. No.	4.2e-55						
Matches	127	Conservative	6	Mismatches	4	Indels	3	Gaps	2
Qy	2	SSSATTPTTPTSTSPKFKH	TTTSTSEHFKPCRD	KDLAYCLNDGECFV	ETLTGSHKH	61			
Db	259	SSTSTTTTPTSTSPKFKH	TTTSTSEHFKPCRD	KDLAYCLNDGECFV	ETLTGSHKH	318			
Qy	62	CRCKEGQGVRCQDFLPK	TDLSILSDP-NHLGIEFMESE	DVYQVQLSISCIIFG	IVIGM	120			
Db	319	CRCKEGQGVRCQDFLPK	TDLSILSDPTDHLGIEFMESE	DVYQVQLSISCIIFG	IVIGM	378			
Qy	121	FCAAFYFKSKRNITANS	VSE	140					
Db	379	FCAAFYFKSKRQ--AK	IOIE	396					

RESULT 2

B43273
heregulin, splice form beta 1 - human
C:Species: Homo sapiens (man)
C:Date: 31-Dec-1993 #sequence_revision 31-Dec-1993 #text_change 09-Jul-2004
C:Accession: B43273; I38406
R:Holmes, W.E.; Sliwkowski, M.X.; Akita, R.W.; Henzel, W.J.; Lee, J.; Park, J.W.; Yansur
Science 256, 1205-1210, 1992
A:Title: Identification of heregulin, a specific activator of p185(erbB2).
A:Reference number: A43273; MUID:92271253; PMID:1350381
A:Accession: B43273
A:Status: preliminary; nucleic acid sequence not shown; not compared with conceptual tra
A:Molecule type: mRNA
A:Residues: 1-645 <HOL>
A:Cross-references: UNIPROT:Q02297
R:Wen, D.; Suggs, S.V.; Karunakaran, D.; Liu, N.; Cupples, R.L.; Luo, Y.; Janseen, A.M.;

Mol. Cell. Biol. 14, 1909-1919, 1994
A;Title: Structural and functional aspects of the multiplicity of Neu differentiation factor
A;Reference number: A56210; MUID:94158863; PMID:7509448
A;Accession: I38406
A;Status: preliminary; translated from GB/EMBL/DBJ
A;Molecule type: mRNA
A;Residues: 'A', 95-418, 'F', 420-645 <RES>
A;Cross-references: EMBL:U02328; NID:G408406; PIDN:AAA19953.1; PID:G408407
C;Genetics:
A;Gene: GDB:HGL
A;Cross-references: GDB:I32656; OMIM:142445
A;Map position: 9p22-8p11
C;Superfamily: human heregulin; EGF homology; immunoglobulin homology
C;Keywords: alternative splicing
F;182-221/Domain: EGF homology <EGF>

Query Match 27.9%; Score 234.5; DB 2; Length 645;
Best Local Similarity 35.9%; Pred. No. 4.6e-14;
Matches 46; Conservative 31; Mismatches 40; Indels 11; Gaps 3;

QY 5 SATTTTPTSTSPKPHTTTSTERSSEHFPCRDKDLAYCLNDGECFVIETLTGSHKH-CR 63
Db 157 SVSTEGANTSSS-----TSTTGTGTLVKAKEKTFVNGGECFVKDLSNPSRYLCK 211

QY 64 CKEGYQGVRCDOPLPKTDSILSDPNHLGIEFMESEVYQVLSISCIIFGIVIVGMFCA 123
Db 212 CPNEFTGDRCONV-----MASFYKHLGIEFMEAEELYQKRVLTITGICIALLVVGIMCV 266

QY 124 AFTFKSKR 131
Db 267 VAYCKTKK 274

RESULT 3
A45769
acetylcholine receptor synthesis stimulator ARIA-1 precursor - chicken
C;Species: Gallus gallus (chicken)
C;Date: 20-Feb-1995 #sequence_revision 20-Feb-1995 #text_change 09-Jul-2004
C;Accession: A45769
R;Falls, D.L.; Rosen, K.M.; Corfas, G.; Lane, W.S.; Fischbach, G.D.
Cell 72, 801-815, 1993
A;Title: ARIA, a protein that stimulates acetylcholine receptor synthesis, is a member of
A;Reference number: A45769; MUID:93201602; PMID:8453670
A;Accession: A45769
A;Status: preliminary
A;Molecule type: mRNA; protein
A;Residues: 1-602 <FAL>
A;Cross-references: UNIPROT:Q05199; GB:L11264; NID:G212603; PIDN:AAA49037.1; PID:G212604
A;Experimental source: brain
C;Superfamily: human heregulin; EGF homology; immunoglobulin homology

Query Match 26.7%; Score 224.5; DB 2; Length 602;
Best Local Similarity 35.6%; Pred. No. 3.6e-13;
Matches 47; Conservative 27; Mismatches 43; Indels 15; Gaps 3;

QY 1 SSSSATTTTPTSTSPKPHTTTSTERSSEHFPCRDKDLAYCLNDGECFVIETLTGSHK 60
Db 116 TKASVIITDNTAIST-----STTGTSHLTKCDIKQKAFVNGGECYKVKDLNPNPR 166

QY 61 H-CRCKEGYQGVRCDOPLPKTDSILSDPNHLGIEFMESEVYQVLSISCIIFGIVIVG 119
Db 167 YLCRCPNFTGDRCONV-----MASFYKHLGIEFMEAEELYQKRVLTITGICIALLVVG 221

QY 120 MFCAAFYFKSKR 131
Db 222 IMCWAYCKTKK 233

RESULT 4
I61719
neu differentiation factor - rat
C;Species: Rattus norvegicus (Norway rat)

C;Date: 29-May-1998 #sequence_revision 29-May-1998 #text_change 09-Jul-2004
C;Accession: I61719; I61723; I61716; I61717; I61724; A38220
R;Wen, D.; Suggs, S.V.; Karunakaran, D.; Liu, N.; Cupples, R.L.; Luo, Y.; Janssen, A.M.;
Mol. Cell. Biol. 14, 1909-1919, 1994
A;Title: Structural and functional aspects of the multiplicity of Neu differentiation factor
A;Reference number: A56210; MUID:94158863; PMID:7509448
A;Accession: I61719
A;Status: preliminary; translated from GB/EMBL/DBJ
A;Molecule type: mRNA
A;Residues: 1-639 <RES>
A;Cross-references: UNIPROT:P43322; EMBL:U02319; NID:G408388; PIDN:AAA19944.1; PID:G408389
A;Accession: I61723
A;Status: preliminary; translated from GB/EMBL/DBJ
A;Molecule type: mRNA
A;Residues: 1-639 <RE2>
A;Cross-references: EMBL:U02323; NID:G408396; PIDN:AAA19948.1; PID:G408397
A;Accession: I61716
A;Status: preliminary; translated from GB/EMBL/DBJ
A;Molecule type: mRNA
A;Residues: 1-422, 'H', 'NL', 637-638, 'ELRKNKAYRSKCMQIQLSATHLRPSSITHLGFIL' <RE3>
A;Cross-references: EMBL:U02316; NID:G408382; PIDN:AAA19941.1; PID:G408383
A;Accession: I61717
A;Status: preliminary; translated from GB/EMBL/DBJ
A;Molecule type: mRNA
A;Residues: 1-422, 'H', 'NL', 637-638, 'ELRKNKAYRSKCMQIQLSATHLRPSSITHLGFIL' <RE4>
A;Cross-references: EMBL:U02317; NID:G408384; PIDN:AAA19942.1; PID:G408385
A;Accession: I61724
A;Status: preliminary; translated from GB/EMBL/DBJ
A;Molecule type: mRNA
A;Residues: 1-422 <RE5>
A;Cross-references: EMBL:U02324; NID:G408398; PIDN:AAA19949.1; PID:G408399
R;Wen, D.; Peles, E.; Cupples, R.; Suggs, S.V.; Bacus, S.S.; Luo, Y.; Trail, G.; Hu, S.;
Cell 69, 559-572, 1992
A;Title: Neu differentiation factor: a transmembrane glycoprotein containing an EGF domain
A;Reference number: A38220; MUID:92257596; PMID:1349853
A;Accession: A38220
A;Status: preliminary
A;Molecule type: mRNA
A;Residues: 1-422 <WEN>
A;Note: sequence extracted from NCBI backbone (NCBIN:101767, NCBIP:101768)
C;Superfamily: human heregulin; EGF homology; immunoglobulin homology

Query Match 24.1%; Score 203; DB 2; Length 639;
Best Local Similarity 29.1%; Pred. No. 3.9e-11;
Matches 44; Conservative 37; Mismatches 50; Indels 20; Gaps 5;

QY 5 SATTTTPTSTSPKPHTTTSTERSSEHFPCRDKDLAYCLNDGECFVIETLTGSHKH-CR 63
Db 157 SVSTEGANTSSS-----TSTTGTGTLVKAKEKTFVNGGECFVKDLSNPSRYLCK 211

QY 64 CKEGYQGVRCDOPLPKTDSILSDPNHLGIEFMESEVYQVLSISCIIFGIVIVGMFCA 122
Db 212 CQPGFTGARTENVP-----MKVQTQKAEELYQKRVLTITGICIALLVVGIMC 260

QY 123 AAPFYKSKNTANSVSEERWKGLPQEPNL 153
Db 261 VWAYCKTKK--RQKLHDLRLQSLRSERSNL 289

RESULT 5
I38404
neu differentiation factor - human
C;Species: Homo sapiens (man)
C;Date: 29-May-1998 #sequence_revision 29-May-1998 #text_change 09-Jul-2004
C;Accession: I38404
R;Wen, D.; Suggs, S.V.; Karunakaran, D.; Liu, N.; Cupples, R.L.; Luo, Y.; Janssen, A.M.;
Mol. Cell. Biol. 14, 1909-1919, 1994
A;Title: Structural and functional aspects of the multiplicity of Neu differentiation factor
A;Reference number: A56210; MUID:94158863; PMID:7509448
A;Accession: I38404
A;Status: preliminary; translated from GB/EMBL/DBJ
A;Molecule type: mRNA
A;Residues: 1-462 <RES>

Db 157 SVSTEGANTSSS-----TSTSTTGTSHLKAKEKTCFVNGGECFTVKDLSNPSRYLCK 211
Qy 64 CKEGYQGVRCDDQFLPKTDSILSDPNHLGIEFMESEEVYQKVLISGCIIFGIVLGMFCA 123
Db 212 CPNEFTGDRQC-----NYWNASFYKAEELYQKRVLTITGICIALLVGIMCV 258
Qy 124 AFYFKSRNITANSVSEERWKGLPSQEPNL 153
Db 259 VAYCKTKKQ--RQKLDRLRQSLRSERNL 286
RESULT 9
C43273
herregulin precursor, splice form beta-2 - human
C;Species: Homo sapiens (man)
C;Date: 31-Dec-1993 #sequence_revision 31-Dec-1993 #text_change 08-Sep-2002
C;Accession: C43273; I38407
R;Holmes, W.E.; Sliwkowski, M.X.; Akita, R.W.; Henzel, W.J.; Lee, J.; Park, J.W.; Yansun
Science 256, 1205-1210, 1992
A;Title: Identification of herregulin, a specific activator of p185(erbB2) .
A;Reference number: A43273; MUID:92271253; PMID:1350381
A;Accession: C43273
A;Status: preliminary; nucleic acid sequence not shown; not compared with conceptual tra
A;Molecule type: mRNA
A;Residues: 1-637 <HOL>
R;Wen, D.; Suggs, S.V.; Karunakaran, D.; Liu, N.; Cupples, R.L.; Luo, Y.; Janssen, A.M.;
Mol. Cell. Biol. 14, 1909-1919, 1994
A;Title: Structural and functional aspects of the multiplicity of Neu differentiation fa
A;Reference number: A56210; MUID:94158863; PMID:7509448
A;Accession: I38407
A;Status: preliminary; translated from GB/EMBL/DBJ
A;Molecule type: mRNA
A;Residues: 119-406 <RES>
A;Cross-references: EMBL:U02329; NID:g408408; PIDN:AAA19954.1; PID:g408409
C;Genetics:
A;Gene: GDB:HGL
A;Cross-references: GDB:I32656; OMIM:142445
A;Map position: 8p22-8p11
C;Superfamily: human herregulin; EGF homology; immunoglobulin homology
C;Keywords: alternative splicing
F;182-221/Domain: EGF homology <EGF>
Query Match 23.3%; Score 196.5; DB 2; Length 637;
Best Local Similarity 30.5%; Pred. No. 1.6e-10;
Matches 39; Conservative 31; Mismatches 39; Indels 19; Gaps 3;
Qy 5 SATTTTPTSTSPKFTTSTYSTERSEHPKPCRDKLAYCLNDGECFVIELTGTSHKH-CR 63
Db 157 SVSTEGANTSSS-----TSTSTTGTSHLVKCAKEKTCFVNGGECFVMDLSNPSRYLCK 211
Qy 64 CKEGYQGVRCDDQFLPKTDSILSDPNHLGIEFMESEEVYQKVLISGCIIFGIVLGMFCA 123
Db 212 CPNEFTGDRQC-----NYWNASFYKAEELYQKRVLTITGICIALLVGIMCV 258
Qy 124 AFYFKSKR 131
Db 259 VAYCKTKK 266
RESULT 10
I38403
neu differentiation factor - human (fragment)
C;Species: Homo sapiens (man)
C;Date: 29-May-1998 #sequence_revision 29-May-1998 #text_change 08-Sep-2002
C;Accession: I38403
R;Wen, D.; Suggs, S.V.; Karunakaran, D.; Liu, N.; Cupples, R.L.; Luo, Y.; Janssen, A.M.;
Mol. Cell. Biol. 14, 1909-1919, 1994
A;Title: Structural and functional aspects of the multiplicity of Neu differentiation fa
A;Reference number: A56210; MUID:94158863; PMID:7509448
A;Accession: I38403
A;Status: preliminary; translated from GB/EMBL/DBJ
A;Molecule type: mRNA

A;Residues: 1-350 <RES>
A;Cross-references: EMBL:U02325; NID:g408400; PIDN:AAA19950.1; PID:g408401
C;Superfamily: human herregulin; EGF homology; immunoglobulin homology
Query Match 22.7%; Score 191.5; DB 2; Length 350;
Best Local Similarity 38.4%; Pred. No. 2.4e-10;
Matches 33; Conservative 26; Mismatches 24; Indels 3; Gaps 2;
Qy 47 GECFVIELTGTSHKH-CRCKEGYQGVRCDDQFLPKTDSILSDPNHLGIEFMESEEVYQKVLIS 105
Db 1 GECFVMDLSNPSRYLCKQCPGFTGARTENVPM--KVQNQKHLGIEFIEAEELYQKRV 58
Qy 106 LSTSCIIFGIVVGMFCAAPYFKSKR 131
Db 59 LITIGICIALLVGIMCVVAYCKTKK 84
RESULT 11
I61722
neu differentiation factor - rat
C;Species: Rattus norvegicus (Norway rat)
C;Date: 29-May-1998 #sequence_revision 29-May-1998 #text_change 09-Jul-2004
C;Accession: I61722
R;Wen, D.; Suggs, S.V.; Karunakaran, D.; Liu, N.; Cupples, R.L.; Luo, Y.; Janssen, A.M.;
Mol. Cell. Biol. 14, 1909-1919, 1994
A;Title: Structural and functional aspects of the multiplicity of Neu differentiation fa
A;Reference number: A56210; MUID:94158863; PMID:7509448
A;Accession: I61722
A;Status: preliminary; translated from GB/EMBL/DBJ
A;Molecule type: mRNA
A;Residues: 1-662 <RES>
A;Cross-references: UNIPROT:P43322; EMBL:U02322; NID:g408394; PIDN:AAA19947.1; PID:g4083;
C;Superfamily: human herregulin; EGF homology; immunoglobulin homology
F;182-221/Domain: EGF homology <EGF>
Query Match 22.5%; Score 189.5; DB 2; Length 662;
Best Local Similarity 27.0%; Pred. No. 7.5e-10;
Matches 44; Conservative 39; Mismatches 59; Indels 21; Gaps 5;
Qy 5 SATTTTPTSTSPKFTTSTYSTERSEHPKPCRDKLAYCLNDGECFVIELTGTSHKH-CR 63
Db 157 SVSTEGANTSSS-----TSTSTTGTSHLIKCAKEKTCFVNGGECFTVKDLSNPSRYLCK 211
Qy 64 CKEGYQGVRCDDQL-----PKTDSILSDP-NHLGIEFMESEEVYQKVLISISC 110
Db 212 CPNEFTGDRCONYVMAFYMTSRRKQETEKPLERKLDHSLVKESKAEELYQKRVLTITG 271
Qy 111 IIFGIVVGMFCAAPYFKSKRNTANSVSEERWKGLPSQEPNL 153
Db 272 ICIALLVGMIMCVVAYCKTKKQ--RQKLDRLRQSLRSERNL 312
RESULT 12
JCS702
Erbb kinase activator alpha2a, brain and thymus - rat
C;Species: Rattus norvegicus (Norway rat)
C;Date: 25-Nov-1997 #sequence_revision 25-Nov-1997 #text_change 09-Jul-2004
C;Accession: JCS702; PC4417
R;Higashiyama, S.; Horikawa, M.; Yamada, K.; Ichino, N.; Nakano, N.; Nakagawa, T.; Miyag;
J. Biochem. 122, 675-680, 1997
A;Title: A novel brain-derived member of the epidermal growth factor family that interaci
A;Reference number: JCS700; MUID:98006324; PMID:9348101
A;Accession: JCS702
A;Status: nucleic acid sequence not shown
A;Molecule type: mRNA
A;Residues: 1-860 <HIG>
A;Cross-references: UNIPROT:O35559; DDBJ:D89996; NID:g2605631; PIDN:BAA23345.1; PID:g260;
A;Experimental source: PC-12 cell
A;Accession: PC4417
A;Status: nucleic acid sequence not shown
A;Molecule type: mRNA
A;Residues: F',212-213,223-860 <HI2>
A;Cross-references: DDBJ:AB001576; NID:g2605478; PIDN:BAA23348.1; PID:g2605479

A;Experimental source: PC-12 cell
C;Comment: This protein is a member of the epidermal growth factor family. It is functional in the differentiation of MDA-MB-453 cells.
C;Superfamily: human ErbB kinase activator alpha, brain and thymus; EGF homology; immunoglobulin domain; EGF homology <EGF>
C;Keywords: glycoprotein
P;274-327/Domain: IG-like #status predicted <IGL>
P;361-397/Domain: EGF homology <EGF>
P;422-444/Domain: hydrophobic #status predicted <HVD>
P;163,294,467/Binding site: carbonyl site (Asn) (covalent) #status predicted

Query Match 20.3%; Score 171; DB 2; Length 860;
Best Local Similarity 31.6%; Pred. No. 5.3e-08;
Matches 37; Conservative 26; Mismatches 42; Indels 12; Gaps 4;

Qy 18 KFTTSTYSTERSE---HFKPCRDKDLAYCLNDGSCFVIETLTGSHKCRKEGVQVRCDD 74
Db 341 RLHVNSVSTLTSSWSGSHARKNETAKSYCVNGGVYIEGI--NQLSKCPNGFGQRCCL 398

Qy 75 QPLPKTSDILSDPNHLGTFEFSSEVQROVLISCIIFGIVVGMFCFAFYFKSKR 131
Db 399 EKLP-LRLYMPDPK-----QKABELYQKRVLTITGICVALLVGVVGVVAYCKTKK 448

RESULT 13
JC5700
ErbB kinase activator alpha, brain and thymus - human
C;Species: Homo sapiens (man)
C;Date: 25-Nov-1997 #sequence_revision 25-Nov-1997 #text_change 09-Jul-2004
C;Accession: JC5700
P;Higaehiyama, S.; Horikawa, M.; Yamada, K.; Ichino, N.; Nakano, N.; Nakagawa, T.; Miyajima, T.; Biochem. J. 322, 675-680, 1997
A;Title: A novel brain-derived member of the epidermal growth factor family that interacts with the epidermal growth factor receptor
A;Reference number: JC5700; MUID:98006324; PMID:9348101
A;Accession: JC5700
A;Status: nucleic acid sequence not shown
A;Molecule type: mRNA
A;Residues: 1-850 <HIG>
A;Cross-references: UNIPROT:O14511; DBJ:AB005060; NID:92626738; PIDN:BAA23417.1; PID:92626738
A;Experimental source: SK-N-SH cell
C;Comment: This protein is a member of the epidermal growth factor family. It is functional in the differentiation of MDA-MB-453 cells.
C;Superfamily: human ErbB kinase activator alpha, brain and thymus; EGF homology; immunoglobulin domain; EGF homology <EGF>
C;Keywords: glycoprotein
P;258-311/Domain: IG-like #status predicted <IGL>
P;345-381/Domain: EGF homology <EGF>
P;346-381/Domain: EGF-like #status predicted <EGF2>
P;147,278,451/Binding site: carbonyl site (Asn) (covalent) #status predicted

Query Match 19.7%; Score 166; DB 2; Length 850;
Best Local Similarity 33.3%; Pred. No. 1.5e-07;
Matches 37; Conservative 26; Mismatches 38; Indels 10; Gaps 4;

Qy 21 TTTTSTYSTERSEHFPCRDKDLAYCLNDGSCFVIETLTGSHKCRKEGVQVRCDDQLPKT 80
Db 332 STLTSS--WSGSHARKNETAKSYCVNGGVYIEGI--NQLSKCPNGFGQRCLEKLP-L 387

Qy 81 DSILSDPNHLGTFEFSSEVQROVLISCIIFGIVVGMFCFAFYFKSKR 131
Db 388 RLNYMPDPK-----QKABELYQKRVLTITGICVALLVGVVGVVAYCKTKK 432

RESULT 14
A56943
sensory/motor neuron-derived factor - human
C;Species: Homo sapiens (man)
C;Date: 18-Aug-1995 #sequence_revision 18-Aug-1995 #text_change 09-Jul-2004
C;Accession: A56943
P;Ho, W.H.; Armanini, M.P.; Nuijens, A.; Phillips, H.S.; Osheroff, P.L.; J. Biol. Chem. 270, 14523-14532, 1995
A;Title: Sensory and motor neuron-derived factor. A novel heregulin variant highly expressed in sensory neurons
A;Reference number: A56943; MUID:95301541; PMID:7782315
A;Accession: A56943
A;Status: preliminary; not compared with conceptual translation

A;Molecule type: mRNA
A;Residues: 1-296 <HOA>
A;Cross-references: UNIPROT:Q15491; GB:L41827; NID:9862422; PIDN:AAC41764.1; PID:9862422
C;Superfamily: human heregulin; EGF homology; immunoglobulin homology
P;237-276/Domain: EGF homology <EGF>

Query Match 16.6%; Score 140; DB 2; Length 296;
Best Local Similarity 32.5%; Pred. No. 1.3e-05;
Matches 25; Conservative 19; Mismatches 31; Indels 2; Gaps 2;

Qy 2 SSSATTTTPTSTSPKFTTSTYSTERSEHFPCRDKDLAYCLNDGSCFVIETLTGSHKH 61
Db 205 SATQPTTETNLQAPKLSTST-STTGTSHLVKCAEKETFCVNGGECFVWKDLSNPSRY 263

Qy 62 -CRCKEGYQGVRCDDQL 77
Db 264 LCKCPNEFTGDRCONV 280

RESULT 15
I38405
neu differentiation factor - human (fragment)
C;Species: Homo sapiens (man)
C;Date: 29-May-1998 #sequence_revision 29-May-1998 #text_change 08-Sep-2002
C;Accession: I38405
P;Wen, D.; Suggs, S.V.; Karunakaran, D.; Liu, N.; Cupples, R.L.; Luo, Y.; Janse, A.M.; Mol. Cell. Biol. 14, 1909-1919, 1994
A;Title: Structural and functional aspects of the multiplicity of Neu differentiation factor
A;Reference number: A56210; MUID:94158863; PMID:7509448
A;Accession: I38405
A;Status: preliminary; translated from GB/EMBL/DBJ
A;Molecule type: mRNA
A;Residues: 1-125 <RES>
A;Cross-references: EMBL:U02327; NID:9408404; PIDN:AAA19952.1; PID:9408405
C;Superfamily: human heregulin; EGF homology; immunoglobulin homology

Query Match 16.3%; Score 137; DB 2; Length 125;
Best Local Similarity 33.3%; Pred. No. 9.6e-06;
Matches 25; Conservative 19; Mismatches 25; Indels 6; Gaps 2;

Qy 5 SATTTTPTSTSPKFTTSTYSTERSEHFPCRDKDLAYCLNDGSCFVIETLTGSHKH-CR 63
Db 35 SVSTEGANTSSS-----TSSTTGTSHLVKCAEKETFCVNGGECFVWKDLSNPSRYLCK 89

Qy 64 CKEGYQGVRCDDQLP 78
Db 90 CQPGFTGARTENVP 104

Search completed: July 13, 2005, 20:28:39
Job time : 39 secs

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GenCore version 5.1.6
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OM protein - protein search, using sw model

Run on: July 13, 2005, 20:17:46 ; Search time 174 Seconds
(without alignments)
462.048 Million cell updates/sec

Title: US-10-609-370-2

Perfect score: 842

Sequence: 1 SSSSATTTPETSTSPKFH.....VSEERWKGLESPNPLOQDK 157

Scoring table:

BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 1612378 seqs, 512079187 residues

Total number of hits satisfying chosen parameters: 1612378

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database :

UniProt_03.*

1: uniprot_sprot.*

2: uniprot_trembl.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	689.5	81.9	720	1 NRG3_HUMAN	P56975 homo sapien
2	674.5	80.1	713	1 NRG3_MOUSE	O35181 mus musculus
3	251.5	29.9	700	2 Q9ESB1	Q9esb1 rattus norv
4	249.5	29.6	700	2 Q6DR99	Q6dr99 mus musculus
5	235.5	28.0	782	2 Q9ESA5	Q9esa5 rattus norv
6	234.5	27.9	645	2 Q7RTW4	Q7rtw4 homo sapien
7	233.5	27.7	645	2 Q6DR98	Q6dr98 mus musculus
8	233.5	27.7	677	1 NRG1_XENLA	Q93383 xenopus lae
9	224.5	26.7	602	1 NRG1_CHICK	Q05199 gallus gall
10	219	26.0	298	2 Q9ES9	Q9esa9 rattus norv
11	219	26.0	695	2 Q9ESB0	Q9esb0 rattus norv
12	208	24.7	756	1 NRG2_MOUSE	P56974 mus musculus
13	203	24.1	461	2 Q35947	O35947 mesocricetu
14	201	23.9	394	2 Q6TGK9	Q6tgk9 oryctolagus
15	201	23.9	462	2 Q7RTW1	Q7rtw1 homo sapien
16	201	23.9	639	1 NRG1_HUMAN	Q02297 h pro-neure
17	201	23.9	640	2 Q7RTW8	Q7rtw8 homo sapien
18	199	23.6	868	1 NRG2_RAT	O35569 rattus norv
19	196.5	23.3	637	2 Q7RTW3	Q7rtw3 homo sapien
20	189.5	22.5	662	1 NRG1_RAT	P43322 r pro-neure
21	166	19.7	850	1 NRG2_HUMAN	O14511 homo sapien
22	156	18.5	76	2 Q810X0	Q810x0 mus musculus
23	143.5	17.0	111	2 Q9ESAB	Q9esab rattus norv
24	140	16.6	296	1 SMDP_HUMAN	Q15491 homo sapien
25	140	16.6	296	2 Q6G1B3	Q6g1b3 homo sapien
26	140	16.6	296	2 Q6ICV5	Q6icv5 homo sapien
27	140	16.6	296	2 Q7RTW2	Q7rtw2 homo sapien
28	138	16.4	296	2 Q8BX76	Q8bx76 mus musculus
29	137	16.3	136	2 Q9ESAT	Q9esat rattus norv
30	137	16.3	256	2 Q9ESA6	Q9esa6 rattus norv
31	129	15.3	115	1 NRG4_MOUSE	Q9wtx4 mus musculus

32	128	15.2	241	2	Q07112	Q07112 bos taurus
33	127	15.1	115	1	NRG4_HUMAN	Q8wv91 homo sapien
34	124.5	14.8	422	2	Q7RTV9	Q7rtv9 homo sapien
35	123.5	14.7	234	1	SPIT_DROME	Q01083 drosophila
36	123.5	14.7	317	2	Q9ESA3	Q9esa3 rattus norv
37	123	14.6	241	2	Q6PK61	Q6pk61 homo sapien
38	123	14.6	241	2	Q7RTW0	Q7rtw0 homo sapien
39	121	14.4	323	2	Q9ESA2	Q9esa2 rattus norv
40	121	14.4	342	2	Q9ESA1	Q9esa1 rattus norv
41	118.5	14.1	1114	2	Q6VQA2	Q6vqa2 brachydanio
42	115	13.7	169	1	EREG_HUMAN	O14944 homo sapien
43	113.5	13.5	162	2	Q9Z0L5	Q9z0l5 rattus norv
44	112	13.3	177	2	Q9JMW4	Q9jmw4 rattus norv
45	111	13.2	177	1	ETC_MOUSE	Q05928 mus musculus

ALIGNMENTS

RESULT 1

ID	NRG3_HUMAN	STANDARD;	PRT;	720 AA.
AC	P56975;			
DT	16-OCT-2001 (Rel. 40, Created)			
DT	16-OCT-2001 (Rel. 40, Last sequence update)			
DT	05-JUL-2004 (Rel. 44, Last annotation update)			
DE	Pro-neuregulin-3 precursor (Pro-NRG3) [Contains: Neuregulin-3 (NRG-3)]			
DE	Name=NRG3;			
GN	Homo sapiens (Human)			
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;			
OC	Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.			
OX	NCBI_TaxID=9606;			
RN	[1]			
RP	SEQUENCE FROM N.A.			
RC	TISSUE=Fetal brain;			
RX	MEDLINE=97420720; PubMed=9275162; DOI=10.1073/pnas.94.18.9562;			
RA	Zhang D., Sliwkowski M.X., Mark M., Frantz G., Akita R., Sun Y., Hillan K., Crowley C., Brush J., Godowski P.J.;			
RT	"Neuregulin-3 (NRG3): a novel neural tissue-enriched protein that binds and activates ErbB4."			
RL	Proc. Natl. Acad. Sci. U.S.A. 94:9562-9567(1997).			
CC	-I- FUNCTION: Direct ligand for the ERBB4 tyrosine kinase receptor. Binding results in ligand-stimulated tyrosine phosphorylation and activation of the receptor. Does not bind to the EGF receptor, ERBB2 or ERBB3 receptors.			
CC	-I- SUBCELLULAR LOCATION: Exists as an type I membrane protein and as a proteolytically released soluble growth factor form. The membrane-bound form does not seem to be active (by similarity).			
CC	-I- TISSUE SPECIFICITY: Highly expressed in most regions of the brain with the exception of corpus callosum. Expressed at lower level in testis. Not detected in heart, placenta, lung, liver, skeletal muscle, kidney, pancreas, spleen, thymus, prostate, ovary, small intestine, colon and peripheral blood leukocytes.			
CC	-I- DOMAIN: The cytoplasmic domain may be involved in the regulation of trafficking and proteolytic processing. Regulation of the proteolytic processing involves initial intracellular domain dimerization (by similarity).			
CC	-I- DOMAIN: ERBB receptor binding is elicited entirely by the EGF-like domain (by similarity).			
CC	-I- PTM: Proteolytic cleavage close to the plasma membrane on the external face leads to the release of the soluble growth factor form (by similarity).			
CC	-I- PTM: Extensive glycosylation precedes the proteolytic cleavage (by similarity).			
CC	-I- SIMILARITY: Belongs to the neuregulin family.			
CC	-I- SIMILARITY: Contains 1 EGF-like domain.			
DR	HSSP; P01133; 1JL9.			
DR	Genew; HGNC:7999; NRG3.			
DR	MIM; 605533; ..			
DR	GO; GO:0005576; C:extracellular; NAS.			
DR	GO; GO:0005887; C:integral to plasma membrane; NAS.			
DR	GO; GO:0008083; F:growth factor activity; NAS.			

DR GO: 0030297; F:transmembrane receptor protein tyrosine kin. . . ; NAS.
DR GO: 0001558; P:regulation of cell growth; NAS.
DR GO: 0007170; P:transmembrane receptor protein tyrosine kin. . . ; NAS.
DR InterPro: IPR000742; EGF_2.
DR InterPro: IPR006209; EGF-like.
DR InterPro: IPR006210; IEGF.
DR InterPro: IPR002154; Neuregulin.
DR Pfam: PF00008; EGF; 1.
DR Pfam: PF02158; Neuregulin; 1.
DR SMART: SM00181; EGF; 1.
DR PROSITE: PS00022; EGF_1; 1.
DR PROSITE: PS01186; EGF_2; 1.
DR PROSITE: PS00026; EGF_3; 1.
KW EGF-like domain; Growth factor; Multigene family; Transmembrane.
FT CHAIN 1 720 pro-neuregulin-3, membrane-bound form.
FT CHAIN 1 359 Neuregulin-3.
FT DOMAIN 1 360 Extracellular (Potential).
FT TRANSMEM 361 381 Internal signal sequence (Potential).
FT DOMAIN 382 720 Cytoplasmic (Potential).
FT DOMAIN 105 285 Ser/Thr-rich.
FT DOMAIN 286 329 EGF-like.
FT DOMAIN 5 8 Poly-Ala.
FT DOMAIN 13 21 Poly-Ala.
FT DOMAIN 26 34 Poly-Ala.
FT DOMAIN 127 135 Poly-Thr.
FT DOMAIN 252 260 Poly-Ser.
FT DOMAIN 262 265 Poly-Thr.
FT DISULFID 290 304 By similarity.
FT DISULFID 298 317 By similarity.
FT DISULFID 319 328 By similarity.
SQ SEQUENCE 720 AA; 77900 MW; A4D6F10DB95A693 CRC64;
Query Match 81.9%; Score 689.5; DB 1; Length 720;
Best Local Similarity 92.3%; Pred. No. 2.4e-59;
Matches 131; Conservative 4; Mismatches 4; Indels 3; Gaps 2;
Qy 1 SSSSAITTTTPTSTSPKFTTTTSTERSHFKPCRDKDLAYCLNDGECFVIETLTGSHK 60
Db 256 SSSSAITTTTPTSTSPKFTTTTSTERSHFKPCRDKDLAYCLNDGECFVIETLTGSHK 315
Qy 61 HCCKEYQGVRCDFLPKTDLSLSDP-NHLGTFEFSSEVYQYQVLSICIIIFGIVG 119
Db 316 HCCKEYQGVRCDFLPKTDLSLSDP-TDHLGTFEFSSEVYQYQVLSICIIIFGIVG 375
Qy 120 MFCAAFYFKSKRNTANSVSEE 141
Db 376 MFCAAFYFKSKQ--AKIQEQ 395
RESULT 2
NRG3 MOUSE
ID_NRG3_MOUSE STANDARD; PRT; 713 AA.
AC Q35181;
DT 16-OCT-2001 (Rel. 40, Created)
DT 16-OCT-2001 (Rel. 40, Last sequence update)
DT 05-JUL-2004 (Rel. 44, Last annotation update)
DE Pro-neuregulin-3 precursor (Pro-NRG3) [Contains: Neuregulin-3 (NRG-3)].
DE 3)].
GN Name=Nrg3;
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Brain;
RX MEDLINE=37420720; PubMed=9275162; DOI=10.1073/pnas.94.18.9562;
RA Zhang D., Sliwkowski M.X., Mark M., Frantz G., Akita R., Sun Y.,
RA Hillan K., Crowley C., Brush J., Godowski P.J.;
RT "Neuregulin-3 (NRG3): a novel neural tissue-enriched protein that
RT binds and activates ErbB4.";
RL Proc. Natl. Acad. Sci. U.S.A. 94:9562-9567(1997).
CC -!- FUNCTION: Direct ligand for the ERBB4 tyrosine kinase receptor.

CC Binding results in ligand-stimulated tyrosine phosphorylation and activation of the receptor. Does not bind to the EGF receptor, ERBB2 or ERBB3 receptors.
CC -!- SUBCELLULAR LOCATION: Exists as an type I membrane protein and as a proteolytically released soluble growth factor form. The membrane-bound form does not seem to be active (By similarity).
CC -!- TISSUE SPECIFICITY: Expressed in sympathetic, motor, and sensory neurons.
CC -!- DEVELOPMENTAL STAGE: Detected as early as 11 dpc. At 13 dpc detected mainly in the nervous system. At 16 dpc, detected in the brain, spinal cord, trigeminal, vestibular-cochlear, and spinal ganglia. In adults, expressed in spinal cord, and numerous brain regions.
CC -!- DOMAIN: The cytoplasmic domain may be involved in the regulation of trafficking and proteolytic processing. Regulation of the proteolytic processing involves initial intracellular domain dimerization (By similarity).
CC -!- DOMAIN: ERBB receptor binding is elicited entirely by the EGF-like domain (By similarity).
CC -!- PTM: Proteolytic cleavage close to the plasma membrane on the external face leads to the release of the soluble growth factor form (By similarity).
CC -!- PTM: Extensive glycosylation precedes the proteolytic cleavage (By similarity).
CC -!- SIMILARITY: Belongs to the neuregulin family.
CC -!- SIMILARITY: Contains 1 EGF-like domain.

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CC EMBL: AF010130; AAB70914.1; -.
DR PIR: T44447; T44447.
DR HSP: P01133; IJL9.
DR MGD: MGI:1097165; Nrg3.
DR GO: GO:0005515; F:protein binding; IPI.
DR GO: GO:0007243; P:protein kinase cascade; IDA.
DR InterPro: IPR000742; EGF_2.
DR InterPro: IPR006209; EGF-like.
DR InterPro: IPR002154; Neuregulin.
DR Pfam: PF00008; EGF; 1.
DR Pfam: PF02158; Neuregulin; 1.
DR PROSITE: PS00022; EGF_1; 1.
DR PROSITE: PS01186; EGF_2; 1.
DR PROSITE: PS00026; EGF_3; 1.
DR EGF-like domain; Growth factor; Multigene family; Transmembrane.
KW CHAIN 1 713 Pro-neuregulin-3, membrane-bound form.
FT CHAIN 1 361 Neuregulin-3.
FT DOMAIN 1 362 Extracellular (Potential).
FT TRANSMEM 363 383 Internal signal sequence (Potential).
FT DOMAIN 384 713 Cytoplasmic (Potential).
FT DOMAIN 105 287 Ser/Thr-rich.
FT DOMAIN 288 331 EGF-like.
FT DOMAIN 13 21 Poly-Ala.
FT DOMAIN 26 34 Poly-Ala.
FT DOMAIN 127 135 Poly-Thr.
FT DOMAIN 250 253 Poly-Ala.
FT DOMAIN 254 263 Poly-Ser.
FT DOMAIN 264 267 Poly-Thr.
FT DISULFID 292 306 By similarity.
FT DISULFID 300 319 By similarity.
FT DISULFID 321 330 By similarity.
SQ SEQUENCE 713 AA; 77369 MW; 9F7D1D5E7FC8DCF0 CRC64;
Query Match 80.1%; Score 674.5; DB 1; Length 713;
Best Local Similarity 90.7%; Pred. No. 7.2e-58;
Matches 127; Conservative 6; Mismatches 4; Indels 3; Gaps 2;
Qy 2 SSSSAITTTTPTSTSPKFTTTTSTERSHFKPCRDKDLAYCLNDGECFVIETLTGSHK 61

Db	259	SSSSATTTTPTSTSPKPHTTTTYTERSEHPKPCRDKDLAYCLNDGECFVITETLTGSHKH	319
Qy	62	CRCKEGYQGVRCDOFLPKTDSILSDP--NHLGTFMESEVYQRVQLVLSICIFGIVIGM	120
Db	319	CRCKEGYQGVRCDOFLPKTDSILSDPDLHLGTFMESEVYQRVQLVLSICIFGIVIGM	378
Qy	121	FCAAFYFKSKRNITANSVSE 140	
Db	379	FCAAFYFKSKKQ--AKQIQE 396	
RESULT 3			
ID	Q9ESB1	PRELIMINARY;	PRT; 700 AA.
AC	Q9ESB1;		
DT	01-MAR-2001 (TrEMBLrel. 16, Created)		
DT	01-MAR-2001 (TrEMBLrel. 16, Last sequence update)		
DT	01-MAR-2004 (TrEMBLrel. 26, Last annotation update)		
DE	SDMF neuregulin beta 1a.		
DE	GN	Names=Nrg1;	
OS	Rattus norvegicus (Rat).		
OC	Eumkaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;		
OC	Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.		
OX	NCBI_TaxID=10116;		
RN	[1]		
RP	SEQUENCE FROM N.A.		
RP	STRAIN=Sprague-Dawley;		
RC	Carroll S.L., Anderson K.D., Frohnert P.W.;		
RL	Submitted (OCT-1999) to the EMBL/GenBank/DBJ databases.		
CC	-/- SIMILARITY: Contains 1 EGF-like domain.		
DR	EMBL; AF194438; AAG28427.1; -.		
DR	HSSP; Q12780; 1HRE.		
DR	GO; GO:0005102; F:receptor binding; IEA.		
DR	GO; GO:0009790; P:embryonic development; IEA.		
DR	InterPro; IPR000742; EGF_2.		
DR	InterPro; IPR006209; EGF_like.		
DR	InterPro; IPR002114; HPr_Serp_S.		
DR	InterPro; IPR006210; IEGF.		
DR	InterPro; IPR002154; Neuregulin.		
DR	Pfam; PF00008; EGF; 1.		
DR	Pfam; PF02158; Neuregulin; 1.		
DR	PRINTS; PR01089; NEUREGULIN.		
DR	SMART; SM00181; EGF; 1.		
DR	PROSITE; PS00022; EGF_1; UNKNOWN_1.		
DR	PROSITE; PSS0026; EGF_3; 1.		
DR	PROSITE; PS00589; PTS_HPR_SER; UNKNOWN_1.		
DR	EGF-like domain.		
KW	SEQUENCE 700 AA; 76386 MW; 2F8111B17ECC49DA CRC64;		
Qy	Query Match	29.9%; Score 251.5; DB 2; Length 700;	
Qy	Best Local Similarity	34.0%; Pred. No. 4.5e-16;	
Qy	Matches	5; Conservative 34; Mismatches 58; Indels 9; Gaps 4	
Db	2	SSSATTPTTSTSPKPHTTTTYTERSEHPKPCRDKDLAYCLNDGECFVITETLTGSHKH	61
Db	206	SGTQPQTETNLQAPKLSTST-STTGTSHLKAKEKTCFVNGECFTVKDLNSPSY	264
Qy	62	-CRCKEGYQGVRCDOFLPKTDSILSDPNHLGTFMESEVYQRVQLVLSICIFGIVIGM	120
Db	265	LCKPNEFTGDRCONYV-----MASFYKHLGTFMEAEELYQKRVLTITGICIAALLVVG	319
Qy	121	FCAAFYFKSKRNITANSVSEERWGLPSQENL 153	
Db	320	MCVVAYCKTKQ--RQLHLRLQSLRSERSNL 350	
RESULT 4			
ID	Q6DR99	PRELIMINARY;	PRT; 700 AA.
AC	Q6DR99;		
DT	25-OCT-2004 (TrEMBLrel. 28, Created)		
DT	25-OCT-2004 (TrEMBLrel. 28, Last sequence update)		

DR InterPro; IPR006209; EGF_like.
DR InterPro; IPR002114; Hpr_Serp_S.
DR InterPro; IPR006210; IEGF.
DR InterPro; IPR007110; Ig-like.
DR InterPro; IPR003598; Ig_c2.
DR InterPro; IPR002154; Neuregulin.
DR Pfam; PF00008; EGF; 1.
DR Pfam; PF00047; Ig; 1.
DR Pfam; PF02158; Neuregulin; 1.
DR PRINTS; PR01089; NEUREGULIN.
DR SMART; SM00181; EGF; 1.
DR SMART; SM00408; IGC2; 1.
DR PROSITE; PS00022; EGF_1; UNKNOWN_1.
DR PROSITE; PS00026; EGF_3; 1.
DR PROSITE; PS00835; IG_Like; 1.
DR PROSITE; PS00589; PTS_HPR_SER; UNKNOWN_1.
KW EGF-like domain.
FT NON_TER 1
SQ SEQUENCE 782 AA; 86036 MW; F6174A68F4E27BDE CRC64;
Query Match 28.0%; Score 235.5; DB 2; Length 782;
Best Local Similarity 33.3%; Pred. No. 1.9e-14;
Matches 50; Conservative 34; Mismatches 53; Indels 13; Gaps 4;
QY 5 SATTTTPTSTSPKPHHTTSTYSTERSEHFKPCRDKDLAYCLNDGECFVETLTGSHKH-CR 63
DB 295 SVSTEGANTSSS-----TSTSTTGTSLHKCAEKEKTCVNGGECFTVKDLNPNRSLCK 349
QY 64 CKEGYQGVRCDFLPKTDLSILSDPNHLGIEFMESEEVQVQLVLSICFIQIVIGMPCA 123
DB 350 CPNEFTGDRCONVY-----MASFYKHLGIEFMEABELYQKRVLTITGICIALLVVGIMCV 404
QY 124 AFYFKSKRNTANSVSEERWKLPSQEPNL 153
DB 405 VAYCKTKQ--ROKLHRLRQLRSRSNL 432
RESULT 6
Q7RTW4 PRELIMINARY; PRT; 645 AA.
ID Q7RTW4
AC Q7RTW4; (TREMBLrel. 26, Created)
DT 01-MAR-2004 (TREMBLrel. 26, Last sequence update)
DT 01-MAR-2004 (TREMBLrel. 26, Last annotation update)
DE Neuregulin 1 isoform HRG-beta1.
GN Name=NRG1;
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A.
RX PubMed=12145742;
RA Stefanesson H., Sigurdsson E., Steinthorsdottir V., Bjornsdottir S.,
RA Sigurdsson T., Ghosh S., Brynjolfsson J., Gunnarsdottir S.,
RA Ivarsson O., Chou T.T., Hjaltaason O., Birgisdottir B., Jonsson H.,
RA Gudnadottir V.G., Gudmundsdottir E., Bjornsson A., Ingvarsson B.,
RA Ingason A., Sigfusson S., Hardardottir H., Harvey R.P., Brunner D.,
RA Mutel V., Gonzalo A., Lenke G., Sainz J., Johannessen G.,
RA Andreasson T., Gudbjartsson D., Manolescu A., Frigge M.L., Gurney M.E.,
RA Kong A., Gulcher J.R., Petursson H., Stefansson K.;
RT "Neuregulin 1 and Susceptibility to Schizophrenia.";
RL Am. J. Hum. Genet. 71:0-0(2002).
CC -1- MISCELLANEOUS: The sequence shown here is derived from an
CC EMBL/GenBank/DBJ third party annotation (TPA) entry.
DR EMBL; BK000383; DAA00041.1; -.
DR HSP; Q12780; 1HRE.
DR GO; GO:0005102; F_receptor binding; IEA.
DR GO; GO:0009790; P_embryonic development; IEA.
DR InterPro; IPR000742; EGF_2.
DR InterPro; IPR006209; EGF_like.
DR InterPro; IPR007110; Ig-like.
DR InterPro; IPR002154; Neuregulin.
DR Pfam; PF00008; EGF; 1.
DR Pfam; PF00047; Ig; 1.
DR Pfam; PF02158; Neuregulin; 1.
DR PRINTS; PR01089; NEUREGULIN.
DR SMART; SM00181; EGF; 1.
DR SMART; SM00408; IGC2; 1.
DR PROSITE; PS00022; EGF_1; UNKNOWN_1.
DR PROSITE; PS00026; EGF_3; 1.
DR PROSITE; PS00835; IG_Like; 1.
KW EGF-like domain.
SQ SEQUENCE 645 AA; 71381 MW; 7E575AEF73F55047 CRC64;
Query Match 27.7%; Score 233.5; DB 2; Length 645;
Best Local Similarity 35.9%; Pred. No. 2.4e-14;
Matches 46; Conservative 31; Mismatches 40; Indels 11; Gaps 3;
QY 5 SATTTTPTSTSPKPHHTTSTYSTERSEHFKPCRDKDLAYCLNDGECFVETLTGSHKH-CR 63
DB 157 SVSTEGANTSSS-----TSTSTTGTSLHVKCAEKEKTCVNGGECFMVKDLNPNRSLCK 211
QY 64 CKEGYQGVRCDFLPKTDLSILSDPNHLGIEFMESEEVQVQLVLSICFIQIVIGMPCA 123
DB 212 CPNEFTGDRCONVY-----MASFYKHLGIEFMEABELYQKRVLTITGICIALLVVGIMCV 266
QY 124 AFYFKSKR 131
DB 267 VAYCKTKK 274
RESULT 7
Q6DR98 PRELIMINARY; PRT; 645 AA.
ID Q6DR98
AC Q6DR98; (TREMBLrel. 28, Created)
DT 25-OCT-2004 (TREMBLrel. 28, Last sequence update)
DT 25-OCT-2004 (TREMBLrel. 28, Last annotation update)
DE Neuregulin-1 type I beta1-a.
GN Name=Nrg1;
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=C57/BL6J;
RA Anton E.S., Ghashghaei H.T., Weber J.L., McCann C., Fischer T.M.,
RA Cheung I.D., Gassmann M., Messing A., Klein R., Schwab M.H.,
RA Lloyd K.C., Lai C.;
RL Submitted (JUN-2004) to the EMBL/GenBank/DBJ databases.
CC -1- SIMILARITY: Contains 1 EGF-like domain.
DR EMBL; AY648976; AAT68241.1; -.
DR GO; GO:0005102; F_receptor binding; IEA.
DR GO; GO:0009790; P_embryonic development; IEA.
DR InterPro; IPR000742; EGF_2.
DR InterPro; IPR006209; EGF_like.
DR InterPro; IPR006210; IEGF.
DR InterPro; IPR003599; Ig.
DR InterPro; IPR007110; Ig-like.
DR InterPro; IPR003598; Ig_c2.
DR InterPro; IPR002154; Neuregulin.
DR Pfam; PF00008; EGF; 1.
DR Pfam; PF00047; Ig; 1.
DR Pfam; PF02158; Neuregulin; 1.
DR PRINTS; PR01089; NEUREGULIN.
DR SMART; SM00181; EGF; 1.
DR SMART; SM00408; IGC2; 1.
DR PROSITE; PS00022; EGF_1; UNKNOWN_1.
DR PROSITE; PS00026; EGF_3; 1.
DR PROSITE; PS00835; IG_Like; 1.
KW EGF-like domain.
SQ SEQUENCE 645 AA; 71381 MW; 7E575AEF73F55047 CRC64;
Query Match 27.7%; Score 233.5; DB 2; Length 645;
Best Local Similarity 35.9%; Pred. No. 2.4e-14;
Matches 46; Conservative 31; Mismatches 40; Indels 11; Gaps 3;


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Query Match      26.7%; Score 224.5; DB 1; Length 602;
Best Local Similarity 35.6%; Pred. No. 1.7e-13;
Matches 47; Conservative 27; Mismatches 43; Indels 15; Gaps 3;

Qy 1 SSSSATTTPETSTSPKFTTTTSTERSSEHFPCRDKDLAYCLNDGECFVIETLTGSHK 60
Db 116 TKASVIITDINAST-----STGTSHLTCKDIKQKAFVNGGECYVWKLPPR 166
Qy 61 H-CRCKEGYQVRCDOFLPKTDSILSDPNHLGIEFMSESEVYQKVLISCSIIIFGIVVG 119
Db 167 YLCRCPNFTGDRCONVY-----MASFYKHLGIEFMEAEELYQKRVLTITGICIALLVVG 221
Qy 120 MFCAAFYFKSKR 131
Db 222 IMCVVAYCKTKK 233

RESULT 10
QESAS9 PRELIMINARY; PRT; 298 AA.
AC QESAS9;
DT 01-MAR-2001 (TrEMBLrel. 16, Created)
DT 01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
DE SMDF neuregulin alpha 2b (Fragment).
GN Name=Nrg1;
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
OX NCBI_TaxID=10116;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=BDIX;
RA Carroll S.L., Anderson K.D., Frohnert P.W.;
RL Submitted (OCT-1999) to the EMBL/GenBank/DBJ databases.
CC -1- SIMILARITY: Contains 1 EGF-like domain.
DR EMBL; AF194440; AAC28429.1; -.
DR HSP; Q12780; IHRE.
DR GO; GO:0005102; F:receptor binding; IEA.
DR InterPro; IPR000790; P:embryonic development; IEA.
DR InterPro; IPR000742; EGF_2.
DR InterPro; IPR006209; EGF_like.
DR InterPro; IPR002114; HPr_Serp_S.
DR InterPro; IPR006210; IEGF.
DR Pfam; PF00008; EGF_1.
DR PRINTS; PR01089; NEUREGULIN.
DR SMART; SM00181; EGF_1.
DR PROSITE; PS00022; EGF_1; 1.
DR PROSITE; PS01186; EGF_2; 1.
DR PROSITE; PS00026; EGF_3; 1.
DR PROSITE; PS00589; PTS_HPR_SER; UNKNOWN_1.
KW EGF-like domain.
FT NON_TER 1
FT TER 298
SQ SEQUENCE 298 AA; 32851 MW; BD76F014C2B33026 CRC64;

Query Match      26.0%; Score 219; DB 2; Length 298;
Best Local Similarity 29.9%; Pred. No. 2.7e-13;
Matches 46; Conservative 37; Mismatches 55; Indels 16; Gaps 5;

Qy 2 SSSSATTTPETSTSPKFTTTTSTERSSEHFPCRDKDLAYCLNDGECFVIETLTGSHK 61
Db 20 SGTPQPTETNLQAPKLSST-STGTSHLICKAEKTEFCVNGGECFTVKDLNPSRY 78
Qy 62 -CRCKEGYQVRCDOFLPKTDSILSDPNHLGIEFME-SEEVYQKVLISCSIIIFGIVVG 119
Db 79 LCKQCPGFTGARTENVP-----MKVQTEKAEELYQKRVLTITGICIALLVVG 127
Qy 120 MFCAAFYFKSKRNITANSVSEERWKGLPQEPNL 153
Db 128 IMCVVAYCKTKQ--ROKLDRLRQLSRSRNL 159

Query Match      26.0%; Score 219; DB 2; Length 298;
Best Local Similarity 29.9%; Pred. No. 2.7e-13;
Matches 46; Conservative 37; Mismatches 55; Indels 16; Gaps 5;

Qy 2 SSSSATTTPETSTSPKFTTTTSTERSSEHFPCRDKDLAYCLNDGECFVIETLTGSHK 61
Db 20 SGTPQPTETNLQAPKLSST-STGTSHLICKAEKTEFCVNGGECFTVKDLNPSRY 78
Qy 62 -CRCKEGYQVRCDOFLPKTDSILSDPNHLGIEFME-SEEVYQKVLISCSIIIFGIVVG 119
Db 79 LCKQCPGFTGARTENVP-----MKVQTEKAEELYQKRVLTITGICIALLVVG 127
Qy 120 MFCAAFYFKSKRNITANSVSEERWKGLPQEPNL 153
Db 128 IMCVVAYCKTKQ--ROKLDRLRQLSRSRNL 159
```

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RESULT 11
QESB0 PRELIMINARY; PRT; 695 AA.
AC QESB0;
DT 01-MAR-2001 (TrEMBLrel. 16, Created)
DT 01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
DE SMDF neuregulin alpha 2a.
GN Name=Nrg1;
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
OX NCBI_TaxID=10116;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=BDIX;
RA Carroll S.L., Anderson K.D., Frohnert P.W.;
RL Submitted (OCT-1999) to the EMBL/GenBank/DBJ databases.
CC -1- SIMILARITY: Contains 1 EGF-like domain.
DR EMBL; AF194439; AAC28428.1; -.
DR HSP; Q12780; IHRE.
DR GO; GO:0005102; F:receptor binding; IEA.
DR InterPro; IPR000790; P:embryonic development; IEA.
DR InterPro; IPR000742; EGF_2.
DR InterPro; IPR006209; EGF_like.
DR InterPro; IPR002114; HPr_Serp_S.
DR InterPro; IPR006210; IEGF.
DR Pfam; PF00008; EGF_1.
DR PRINTS; PR01089; NEUREGULIN.
DR SMART; SM00181; EGF_1.
DR PROSITE; PS00022; EGF_1; 1.
DR PROSITE; PS01186; EGF_2; 1.
DR PROSITE; PS00026; EGF_3; 1.
DR PROSITE; PS00589; PTS_HPR_SER; UNKNOWN_1.
KW EGF-like domain.
SQ SEQUENCE 695 AA; 75646 MW; 5277F2CBA2FB6878 CRC64;

Query Match      26.0%; Score 219; DB 2; Length 695;
Best Local Similarity 29.9%; Pred. No. 7.2e-13;
Matches 46; Conservative 37; Mismatches 55; Indels 16; Gaps 5;

Qy 2 SSSSATTTPETSTSPKFTTTTSTERSSEHFPCRDKDLAYCLNDGECFVIETLTGSHK 61
Db 206 SGTPQPTETNLQAPKLSST-STGTSHLICKAEKTEFCVNGGECFTVKDLNPSRY 264
Qy 62 -CRCKEGYQVRCDOFLPKTDSILSDPNHLGIEFME-SEEVYQKVLISCSIIIFGIVVG 119
Db 265 LCKQCPGFTGARTENVP-----MKVQTEKAEELYQKRVLTITGICIALLVVG 313
Qy 120 MFCAAFYFKSKRNITANSVSEERWKGLPQEPNL 153
Db 314 IMCVVAYCKTKQ--ROKLDRLRQLSRSRNL 345

RESULT 12
NRG2_MOUSE PRELIMINARY; PRT; 756 AA.
AC NRG2_MOUSE;
DT 16-OCT-2001 (Rel. 40, Created)
DT 16-OCT-2001 (Rel. 40, Last sequence update)
DT 05-JUL-2004 (Rel. 44, Last annotation update)
DE Pro-neuregulin-2 precursor (Pro-NRG2) (Contains: Neuregulin-2 (NRG-2)
DE (Divergent of neuregulin 1) (DON-1)).
GN Name=Nrg2;
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_TaxID=10090;
RN [1]
```

SEQUENCE FROM N.A. (ISOFORMS NRG2-5; NRG2-10 AND NRG2-16A).
 RC STRAIN=C57BL/6; TISSUE=Brain;
 RX MEDLINE=97311398; PubMed=9168115;
 RA Caraway K.L. III, Weber J.L., Unger M.J., Ledesma J., Yu N.,
 RA Gassmann M., Lai C.; a new ligand of ErbB3/ErbB4-receptor tyrosine
 RT "Neuregulin-2, a new ligand of ErbB3/ErbB4-receptor tyrosine
 RT kinases."; Nature 387:512-516(1997).
 RL Nature 387:512-516(1997).
 RN [2]
 RP SEQUENCE OF 150-756 FROM N.A. (ISOFORMS DON-1M AND DON-1S).
 RC TISSUE=Choroid plexus;
 RX MEDLINE=97342638; PubMed=9199335;
 RA Busfield S.J., Michnick D.A., Chickering T.W., Revett T.L., Ma J.,
 RA Woolf E.A., Conrath C.A., Dussault B.J., Woolf J., Goodearl A.D.J.,
 RA Gearing D.P.;
 RT "Characterization of a neuregulin-related gene, Don-1, that is highly
 RT expressed in restricted regions of the cerebellum and hippocampus."; Mol.
 RL Cell. Biol. 17:4007-4014(1997).
 CC -!- FUNCTION: Direct ligand for ERBB3 and ERBB4 tyrosine kinase
 CC receptors. Concomitantly recruits ERBB1 and ERBB2 coreceptors,
 CC resulting in ligand-stimulated tyrosine phosphorylation and
 CC activation of the ERBB receptors. May also promote the
 CC heterodimerization with the EGF receptor.
 CC -!- SUBCELLULAR LOCATION: Exists as an type I membrane protein and as
 CC a proteolytically released soluble growth factor form. The
 CC membrane-bound form does not seem to be active (By similarity).
 CC -!- ALTERNATIVE PRODUCTS:
 CC Event=Alternative splicing; Named isoforms=4;
 CC Comment=Additional isoforms seem to exist;
 CC Name=NRG2-16A;
 CC IsoId=P56974-1; Sequence=Displayed;
 CC Name=DON-1M;
 CC IsoId=P56974-2; Sequence=VSP_003464;
 CC Name=DON-1S; Synonyms=NRG2-5;
 CC IsoId=P56974-3; Sequence=VSP_003462, VSP_003463;
 CC Name=NRG2-10;
 CC IsoId=P56974-4; Sequence=VSP_003460, VSP_003461;
 CC -!- TISSUE SPECIFICITY: Highest expression in the brain, with lower
 CC levels in the lung. In the cerebellum, found in granule and
 CC Purkinje cells.
 CC -!- DOMAIN: The cytoplasmic domain may be involved in the regulation
 CC of trafficking and proteolytic processing. Regulation of the
 CC proteolytic processing involves initial intracellular domain
 CC dimerization (By similarity).
 CC -!- DOMAIN: ERBB receptor binding is elicited entirely by the EGF-like
 CC domain (By similarity).
 CC -!- PTM: Proteolytic cleavage close to the plasma membrane on the
 CC external face leads to the release of the soluble growth factor
 CC form (By similarity).
 CC -!- PTM: Extensive glycosylation precedes the proteolytic cleavage (By
 CC similarity).
 CC -!- SIMILARITY: Belongs to the neuregulin family.
 CC -!- SIMILARITY: Contains 1 EGF-like domain.
 CC -!- SIMILARITY: Contains 1 immunoglobulin-like C2-type domain.
 DR HSSP; Q12780; 1HRE.
 DR MGD; MGI:1098246; Nrg2.
 DR InterPro; IPR000742; EGF 2.
 DR InterPro; IPR006209; EGF-like.
 DR InterPro; IPR006210; IEGF.
 DR InterPro; IPR007110; Ig-like.
 DR InterPro; IPR003598; Ig_c2.
 DR Pfam; PF00008; EGF; 1.
 DR Pfam; PF00047; ig; 1.
 DR Pfam; PF02158; Neuregulin; 1.
 DR SMART; SM00181; EGF; 1.
 DR SMART; SM00408; IGC2; 1.
 DR PROSITE; PS00022; EGF 1; 1.
 DR PROSITE; PS01186; EGF 2; 1.
 DR PROSITE; PS50026; EGF 3; 1.
 DR PROSITE; PS50835; IG-LIKE; 1.
 KW Alternative splicing; EGF-like domain; Glycoprotein; Growth factor;
 KW Immunoglobulin domain; Multigene family; Transmembrane.

FT PROPEP 1 19 By similarity.
 FT CHAIN 20 756 Pro-neuregulin-2, membrane-bound form.
 FT CHAIN 20 314 Neuregulin-2.
 FT DOMAIN 20 315 Extracellular (Potential).
 FT TRANSMEM 316 336 Intracellular signal sequence (Potential).
 FT DOMAIN 337 756 Cytoplasmic (Potential).
 FT DOMAIN 145 240 Ig-like C2-type.
 FT DOMAIN 238 248 Ser/Thr-rich.
 FT DOMAIN 249 290 EGF-like.
 FT DOMAIN 627 633 Poly-Pro.
 FT DISULFID 165 219 By similarity.
 FT DISULFID 253 267 By similarity.
 FT DISULFID 261 278 By similarity.
 FT DISULFID 280 289 By similarity.
 FT CARBOHYD 55 55 N-linked (GlcNAc. . .) (Potential).
 FT CARBOHYD 186 186 N-linked (GlcNAc. . .) (Potential).
 FT CARBOHYD 254 254 N-linked (GlcNAc. . .) (Potential).
 FT CARBOHYD 296 296 N-linked (GlcNAc. . .) (Potential).
 FT VARSPPLIC 280 280 C -> G (in isoform NRG2-10).
 FT VARSPPLIC 281 756 /FTId=VSP_003460.
 FT VARSPPLIC 282 330 Missing (in isoform NRG2-10).
 FT VARSPPLIC 282 330 /FTId=VSP_003461.
 FT VARSPPLIC 282 330 VGYTGRCCQGFAMVNFSEKHLGPELKEAEELYQKRVLTITGI
 FT CVALLVVG -> NGFFGQRCLKPLRLYMPDPKQSVLWDT
 FT PGTVSSSQWSTSPSTLDLN (in isoform DON-1S).
 FT /FTId=VSP_003462.
 FT VARSPPLIC 331 756 Missing (in isoform DON-1S).
 FT VARSPPLIC 282 307 /FTId=VSP_003463.
 FT VARSPPLIC 282 307 VGYTGRCCQGFAMVNFSEKHLGPELKE -> NGFFGQRCLK
 FT LPRLYMPDPKQK (in isoform DON-1M).
 FT /FTId=VSP_003464.
 SQ SEQUENCE 756 AA; 82213 MW; 51D85DC918BE678E CRC64;
 Query Match 24.7%; Score 208; DB 1; Length 756;
 Best Local Similarity 35.0%; Pred. No. 9.7e-12;
 Matches 41; Conservative 26; Mismatches 40; Indels 10; Gaps 3;
 QY 18 KFHHTTYSERSE--HFKPCRDKLAYCLNDCGCVIFETLTGSHKHCRCKEGYQGVRC 74
 Db 233 RLHVNSVSTLSSWSGHARKCNETAKSYCVNGVCYVIEGI--NQLSKCPVGYTGDRCQ 290
 QY 75 QFLPKTDSLSPNHLGIEFMSEEVYQVLSISCIIFGIVIVGMFCAAFYKSKR 131
 Db 291 QP-----AMVNFSEKHLGPELKEAEELYQKRVLTITGICVALLVVGIVCVVAYCKTKR 342
 RESULT 13
 ID O35947 PRELIMINARY; PRT; 461 AA.
 AC O35947;
 DT 01-JAN-1998 (TrEMBLrel. 05, Created)
 DT 01-JAN-1998 (TrEMBLrel. 05, Last sequence update)
 DT 01-MAR-2004 (TrEMBLrel. 26, Last annotation update)
 DE Neuregulin.
 OS Mesocricetus auratus (Golden hamster).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
 OC Mesocricetus.
 OX NCBI_TaxID=10036;
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Velasco J.A., FeiJoo E., Avila M.A., Notario V.;
 RL Submitted (APR-1997) to the EMBL/GenBank/DBJ databases.
 CC -!- SIMILARITY: Contains 1 EGF-like domain.
 DR EMBL; U96612; AAB71812.1; -.
 DR HSSP; Q12780; 1HRE.
 DR GO; GO:0005102; F:receptor binding; IEA.
 DR GO; GO:0009790; P:embryonic development; IEA.
 DR InterPro; IPR000742; EGF 2.
 DR InterPro; IPR006209; EGF-like.
 DR InterPro; IPR006210; IEGF.
 DR InterPro; IPR007110; Ig-like.
 DR InterPro; IPR003598; Ig_c2.

DR InterPro: IPR002154; Neuregulin.
 DR Pfam: PF00008; EGF_1.
 DR Pfam: PF02158; Neuregulin; 1.
 DR PRINTS: PR01089; NEUREGULIN.
 DR SMART: SM00408; IGF_1.
 DR SMART: SM00408; IGF_2; 1.
 DR PROSITE: PS00022; EGF_1; 1.
 DR PROSITE: PS01186; EGF_2; 1.
 DR PROSITE: PS00026; EGF_3; 1.
 DR PROSITE: PS50835; IG_Like; 1.
 KW EGF-like domain.
 SQ SEQUENCE 461 AA; 50890 MW; 935C9560F7148336 CRC64;

Query Match 24.1%; Score 203; DB 2; Length 461;
 Best Local Similarity 28.5%; Pred. No. 1.7e-11;
 Matches 43; Conservative 39; Mismatches 49; Indels 20; Gaps 5;

Qy 5 SATTTTETSTSPKFTHTTSTSESHFKPCRDKDLAYCLNDGRCFVETLTGSHKH-CR 63
 Db 157 SVSTEGANTSSS-----TSTTGTSHLVKCAEKEKTCVNGGCFWVKDLSNPSRYLCK 211
 Qy 64 CKEGYQGVRCDFLPKTDLSILSDPNHLGIEFME--SEEVYQVQLSISCIIFGIVIVGMFC 122
 Db 212 CQPGFTGARTENVP-----MKVQEQEAEELYQKRVLTITGICIALLVVGIMC 260
 Qy 123 AAFYFKSKRNTANSVSEERWKGLPSQEPNL 153
 Db 261 VWAYCKTKQ--RQKLHDLRLQLSRERNNM 289

RESULT 14
 Q6TGK9 Q6TGK9 PRELIMINARY; PRT; 394 AA.
 AC Q6TGK9;
 DT 05-JUL-2004 (TrEMBLrel. 27, Created)
 DT 05-JUL-2004 (TrEMBLrel. 27, Last sequence update)
 DE Neuregulin 1 alpha isoform (Fragment).
 OS Oryctolagus cuniculus (Rabbit).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus.
 OX NCBI_TaxID=9986;
 RN [1]
 RP Hendrickx J.;
 RL Submitted (SEP-2003) to the EMBL/GenBank/DBJ databases.
 CC -1- SIMILARITY: Contains 1 EGF-like domain.
 DR EMBL: AY421758; AAR0250.1; -.
 DR GO: GO:0005102; F:receptor binding; IEA.
 DR GO: GO:0009790; P:embryonic development; IEA.
 DR InterPro: IPR000742; EGF_2.
 DR InterPro: IPR006209; EGF_Like.
 DR InterPro: IPR005210; IEGF.
 DR InterPro: IPR003599; IG.
 DR InterPro: IPR007110; IG-like.
 DR InterPro: IPR003598; IG_C2.
 DR InterPro: IPR002154; Neuregulin.
 DR Pfam: PF00008; EGF_1.
 DR Pfam: PF00047; IG; 1.
 DR Pfam: PF02158; Neuregulin; 1.
 DR PRINTS: PR01089; NEUREGULIN.
 DR SMART: SM00181; EGF; 1.
 DR SMART: SM00409; IG; 1.
 DR SMART: SM00408; IGF_1.
 DR PROSITE: PS00022; EGF_1; 1.
 DR PROSITE: PS01186; EGF_2; 1.
 DR PROSITE: PS00026; EGF_3; 1.
 DR PROSITE: PS50835; IG_Like; 1.
 KW EGF-like domain.
 FT NON_TER 1 1
 SQ SEQUENCE 394 AA; 42980 MW; C183BE80927443F9 CRC64;

Query Match 23.9%; Score 201; DB 2; Length 394;
 Best Local Similarity 31.0%; Pred. No. 2.2e-11;
 Matches 40; Conservative 34; Mismatches 37; Indels 18; Gaps 4;

Qy 5 SATTTTETSTSPKFTHTTSTSESHFKPCRDKDLAYCLNDGRCFVETLTGSHKH-CR 63
 Db 148 SVSTEGANTSSS-----TSTTGTSHLVKCAEKEKTCVNGGCFWVKDLSNPSRYLCK 202
 Qy 64 CKEGYQGVRCDFLPKTDLSILSDPNHLGIEFME--SEEVYQVQLSISCIIFGIVIVGMFC 122
 Db 203 CQPGFTGARTENVP-----MKVQEQEAEELYQKRVLTITGICIALLVVGIMC 251
 Qy 123 AAFYFKSKR 131
 Db 252 VWAYCKTKK 260

RESULT 15
 Q7RTW1 Q7RTW1 PRELIMINARY; PRT; 462 AA.
 AC Q7RTW1;
 DT 01-MAR-2004 (TrEMBLrel. 26, Created)
 DT 01-MAR-2004 (TrEMBLrel. 26, Last sequence update)
 DT 01-MAR-2004 (TrEMBLrel. 26, Last annotation update)
 DE Neuregulin 1 isoform ndf43.
 GN Name=NRG1;
 OS Homo sapiens (Human).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
 OX NCBI_TaxID=9606;
 RN [1]
 RP SEQUENCE FROM N.A.
 RX PubMed=12145742;
 RA Stefansson H., Sigurdson E., Steinthorodottir V., Bjornadottir S.,
 RA Sigmundsson T., Ghosh S., Brynjolfsson J., Gunnaradottir S.,
 RA Ivarsson O., Chou T.T., Hjaltason O., Birgisdottir B., Jonsson H.,
 RA Gudnadottir V.G., Gudmundsdottir E., Bjornsson A., Ingvarsson B.,
 RA Ingason A., Sigfusson S., Hardardottir H., Harvey R.P., Brunner D.,
 RA Mutel V., Gonzalo A., Lemke G., Sainz J., Johannesson G.,
 RA Andresen T., Gudbjartsson D., Manolescu A., Frigge M.L., Gurney M.E.,
 RA Kong A., Gulcher J.R., Petursson H., Stefansson K.;
 RT Neuregulin 1 and Susceptibility to Schizophrenia.;
 RL Am. J. Hum. Genet. 71:0-0(2002).
 CC -1- MISCELLANEOUS: The sequence shown here is derived from an
 CC EMBL/GenBank/DBJ third party annotation (TPA) entry.
 DR EMBL: BK000383; DAA00045.1; -.
 DR HSP; Q12780; IHRE.
 DR GO: GO:0005102; F:receptor binding; IEA.
 DR GO: GO:0009790; P:embryonic development; IEA.
 DR InterPro: IPR000742; EGF_2.
 DR InterPro: IPR006209; EGF_Like.
 DR InterPro: IPR007110; IG-Like.
 DR InterPro: IPR002154; Neuregulin.
 DR Pfam: PF00008; EGF; 1.
 DR Pfam: PF00047; IG; 1.
 DR Pfam: PF02158; Neuregulin; 1.
 DR PRINTS: PR01089; NEUREGULIN.
 DR PROSITE: PS00022; EGF_1; 1.
 DR PROSITE: PS01186; EGF_2; 1.
 DR PROSITE: PS00026; EGF_3; 1.
 DR PROSITE: PS50835; IG_Like; 1.
 DR PROSITE: PS50835; IG_Like; 1.
 SQ SEQUENCE 462 AA; 50848 MW; 8CAADB30055A80D CRC64;

Query Match 23.9%; Score 201; DB 2; Length 462;
 Best Local Similarity 31.0%; Pred. No. 2.7e-11;
 Matches 40; Conservative 34; Mismatches 37; Indels 18; Gaps 4;

Qy 5 SATTTTETSTSPKFTHTTSTSESHFKPCRDKDLAYCLNDGRCFVETLTGSHKH-CR 63
 Db 157 SVSTEGANTSSS-----TSTTGTSHLVKCAEKEKTCVNGGCFWVKDLSNPSRYLCK 211
 Qy 64 CKEGYQGVRCDFLPKTDLSILSDPNHLGIEFME--SEEVYQVQLSISCIIFGIVIVGMFC 122

Db	: : :	: :: : : : : :	-----MKVONQEKABELYQKRVLTITGICIALLVVGIMC 260
Qy	212 CQPGFTGARTENVP		
	123 AAFYFKSR 131		
Db	:		
	261 VWAYCKTK 269		

Search completed: July 13, 2005, 20:27:54
Job time : 176 secs

Db 1 SSSSSATTTTPTSTSPKFTTTTSTSESHFKPCRDKDLAYCLNDGECFVIETLTGSHK 60
Qy 61 HCRCKEGYQGVRCDCQFLPKTDSILSDP-NHLGIEFMESEVYQVLSISCIIFGIVIGM 120
Db 61 HCRCKEGYQGVRCDCQFLPKTDSILSDP-NHLGIEFMESEVYQVLSISCIIFGIVIGM 120
Qy 121 FCAAFYFKSKRNITANSVSEERWKGLPQSPNLSQK-157
Db 121 FCAAFYFKSKRNITANSVSEERWKGLPQSPNLSQK-157

RESULT 2
US-08-899-437-23
Sequence 23, Application US/08899437
Patent No. 6121415
GENERAL INFORMATION:
APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related
Ligands and Uses Therefor
NUMBER OF SEQUENCES: 23
CORRESPONDENCE ADDRESS:
ADDRESSEE: Genentech, Inc.
STREET: 1 DNA Way
CITY: South San Francisco
STATE: California
COUNTRY: USA
ZIP: 94080

COMPUTER READABLE FORM:
MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: WinPatIn (Genentech)
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/899,437
FILING DATE: 24-Jul-1997
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Conley, Deirdre L.
REGISTRATION NUMBER: 36,487
REFERENCE/DOCKET NUMBER: P1084R1
TELEPHONE: 650/225-2066
TELEFAX: 650/952-9881

INFORMATION FOR SEQ ID NO: 23:
SEQUENCE CHARACTERISTICS:
LENGTH: 696 amino acids
TYPE: Amino Acid
TOPOLOGY: Linear
FEATURE:
NAME/KEY: Human NRG3B2
LOCATION: 1-696
IDENTIFICATION METHOD:
OTHER INFORMATION:

US-08-899-437-23
Query Match 81.9%; Score 689.5; DB 3; Length 696;
Best Local Similarity 92.3%; Pred. No. 8.3e-68;
Matches 131; Conservative 4; Mismatches 4; Indels 3; Gaps 2;

Qy 1 SSSSSATTTTPTSTSPKFTTTTSTSESHFKPCRDKDLAYCLNDGECFVIETLTGSHK 60
Db 256 SSSSSATTTTPTSTSPKFTTTTSTSESHFKPCRDKDLAYCLNDGECFVIETLTGSHK 315
Qy 61 HCRCKEGYQGVRCDCQFLPKTDSILSDP-NHLGIEFMESEVYQVLSISCIIFGIVIGM 119
Db 316 HCRCKEGYQGVRCDCQFLPKTDSILSDP-NHLGIEFMESEVYQVLSISCIIFGIVIGM 375
Qy 120 MFCAPYFKSKRNITANSVSE 141
Db 376 MFCAPYFKSKRNITANSVSE 395

US-08-899-437-6
Sequence 6, Application US/08899437
Patent No. 6121415
GENERAL INFORMATION:
APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related
Ligands and Uses Therefor
NUMBER OF SEQUENCES: 23
CORRESPONDENCE ADDRESS:
ADDRESSEE: Genentech, Inc.
STREET: 1 DNA Way

COMPUTER READABLE FORM:
MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: WinPatIn (Genentech)
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/126,121
FILING DATE: 30-Jul-1998
CLASSIFICATION:
ATTORNEY/AGENT INFORMATION:
NAME: Conley, Deirdre L.
REGISTRATION NUMBER: 36,487
REFERENCE/DOCKET NUMBER: P1084R1D1
TELEPHONE: 650/225-2066
TELEFAX: 650/952-9881

INFORMATION FOR SEQ ID NO: 23:
SEQUENCE CHARACTERISTICS:
LENGTH: 696 amino acids
TYPE: Amino Acid
TOPOLOGY: Linear
FEATURE:
NAME/KEY: Human NRG3B2
LOCATION: 1-696
IDENTIFICATION METHOD:
OTHER INFORMATION:
US-09-126-121-23
Query Match 81.9%; Score 689.5; DB 3; Length 696;
Best Local Similarity 92.3%; Pred. No. 8.3e-68;
Matches 131; Conservative 4; Mismatches 4; Indels 3; Gaps 2;

RESULT 3
US-09-126-121-23
Sequence 23, Application US/09126121
Patent No. 6252051
GENERAL INFORMATION:
APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related
Ligands and Uses Therefor
NUMBER OF SEQUENCES: 23
CORRESPONDENCE ADDRESS:
ADDRESSEE: Genentech, Inc.
STREET: 1 DNA Way
CITY: South San Francisco
STATE: California
COUNTRY: USA
ZIP: 94080

COMPUTER READABLE FORM:
MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: WinPatIn (Genentech)
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/126,121
FILING DATE: 30-Jul-1998
CLASSIFICATION:
ATTORNEY/AGENT INFORMATION:
NAME: Conley, Deirdre L.
REGISTRATION NUMBER: 36,487
REFERENCE/DOCKET NUMBER: P1084R1D1
TELEPHONE: 650/225-2066
TELEFAX: 650/952-9881

INFORMATION FOR SEQ ID NO: 23:
SEQUENCE CHARACTERISTICS:
LENGTH: 696 amino acids
TYPE: Amino Acid
TOPOLOGY: Linear
FEATURE:
NAME/KEY: Human NRG3B2
LOCATION: 1-696
IDENTIFICATION METHOD:
OTHER INFORMATION:
US-09-126-121-23
Query Match 81.9%; Score 689.5; DB 3; Length 696;
Best Local Similarity 92.3%; Pred. No. 8.3e-68;
Matches 131; Conservative 4; Mismatches 4; Indels 3; Gaps 2;

Qy 1 SSSSSATTTTPTSTSPKFTTTTSTSESHFKPCRDKDLAYCLNDGECFVIETLTGSHK 60
Db 256 SSSSSATTTTPTSTSPKFTTTTSTSESHFKPCRDKDLAYCLNDGECFVIETLTGSHK 315
Qy 61 HCRCKEGYQGVRCDCQFLPKTDSILSDP-NHLGIEFMESEVYQVLSISCIIFGIVIGM 119
Db 316 HCRCKEGYQGVRCDCQFLPKTDSILSDP-NHLGIEFMESEVYQVLSISCIIFGIVIGM 375
Qy 120 MFCAPYFKSKRNITANSVSE 141
Db 376 MFCAPYFKSKRNITANSVSE 395

US-08-899-437-6
Sequence 6, Application US/08899437
Patent No. 6121415
GENERAL INFORMATION:
APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related
Ligands and Uses Therefor
NUMBER OF SEQUENCES: 23
CORRESPONDENCE ADDRESS:
ADDRESSEE: Genentech, Inc.
STREET: 1 DNA Way

COMPUTER READABLE FORM:
MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: WinPatIn (Genentech)
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/126,121
FILING DATE: 30-Jul-1998
CLASSIFICATION:
ATTORNEY/AGENT INFORMATION:
NAME: Conley, Deirdre L.
REGISTRATION NUMBER: 36,487
REFERENCE/DOCKET NUMBER: P1084R1D1
TELEPHONE: 650/225-2066
TELEFAX: 650/952-9881

INFORMATION FOR SEQ ID NO: 23:
SEQUENCE CHARACTERISTICS:
LENGTH: 696 amino acids
TYPE: Amino Acid
TOPOLOGY: Linear
FEATURE:
NAME/KEY: Human NRG3B2
LOCATION: 1-696
IDENTIFICATION METHOD:
OTHER INFORMATION:
US-09-126-121-23
Query Match 81.9%; Score 689.5; DB 3; Length 696;
Best Local Similarity 92.3%; Pred. No. 8.3e-68;
Matches 131; Conservative 4; Mismatches 4; Indels 3; Gaps 2;

Qy 1 SSSSSATTTTPTSTSPKFTTTTSTSESHFKPCRDKDLAYCLNDGECFVIETLTGSHK 60
Db 256 SSSSSATTTTPTSTSPKFTTTTSTSESHFKPCRDKDLAYCLNDGECFVIETLTGSHK 315
Qy 61 HCRCKEGYQGVRCDCQFLPKTDSILSDP-NHLGIEFMESEVYQVLSISCIIFGIVIGM 119
Db 316 HCRCKEGYQGVRCDCQFLPKTDSILSDP-NHLGIEFMESEVYQVLSISCIIFGIVIGM 375
Qy 120 MFCAPYFKSKRNITANSVSE 141
Db 376 MFCAPYFKSKRNITANSVSE 395

US-08-899-437-6
Sequence 6, Application US/08899437
Patent No. 6121415
GENERAL INFORMATION:
APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related
Ligands and Uses Therefor
NUMBER OF SEQUENCES: 23
CORRESPONDENCE ADDRESS:
ADDRESSEE: Genentech, Inc.
STREET: 1 DNA Way

COMPUTER READABLE FORM:
MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: WinPatIn (Genentech)
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/126,121
FILING DATE: 30-Jul-1998
CLASSIFICATION:
ATTORNEY/AGENT INFORMATION:
NAME: Conley, Deirdre L.
REGISTRATION NUMBER: 36,487
REFERENCE/DOCKET NUMBER: P1084R1D1
TELEPHONE: 650/225-2066
TELEFAX: 650/952-9881

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OM protein - protein search, using sw model

Run on: July 13, 2005, 20:19:22 ; Search time 42 Seconds
(without alignments)
279.045 Million cell updates/sec

Title: US-10-609-370-2
Perfect score: 842
Sequence: 1 SSSSATTPTSTSPKFKH.....VSERWKGLPSQEPNLOQDK 157

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 513545 seqs, 74649064 residues

Total number of hits satisfying chosen parameters: 513545

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : Issued Patents AA.*
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2: /cgn2_6/ptodata/1/iaa/5B_COMB.pep.*
3: /cgn2_6/ptodata/1/iaa/6A_COMB.pep.*
4: /cgn2_6/ptodata/1/iaa/6B_COMB.pep.*
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6: /cgn2_6/ptodata/1/iaa/backfiles.pep.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

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1	842	100.0	157	4	US-09-097-681-2
2	689.5	81.9	696	3	US-08-899-437-23
3	689.5	81.9	720	3	US-08-126-121-23
4	689.5	81.9	720	3	US-08-899-437-6
5	689.5	81.9	720	3	US-08-126-121-6
6	686.5	81.5	720	4	US-09-097-681-22
7	674.5	80.1	713	3	US-08-899-437-2
8	674.5	80.1	713	3	US-08-126-121-2
9	552.5	65.6	360	3	US-08-899-437-7
10	552.5	65.6	360	3	US-08-126-121-7
11	539.5	64.1	362	3	US-08-899-437-3
12	539.5	64.1	362	3	US-09-126-121-3
13	282	33.5	48	4	US-08-553-769-6
14	277	32.9	47	3	US-08-899-437-4
15	277	32.9	47	3	US-08-899-437-8
16	277	32.9	47	3	US-09-126-121-4
17	277	32.9	47	3	US-09-126-121-8
18	251.5	29.9	700	4	US-09-684-708A-2
19	246.5	29.3	1070	3	US-08-697-954-2
20	243	28.9	364	4	US-08-467-602-245
21	243	28.9	364	4	US-08-411-295F-171
22	243	28.9	398	4	US-08-467-602-287
23	243	28.9	398	4	US-08-411-295F-213
24	243	28.9	581	4	US-08-467-602-246
25	243	28.9	581	4	US-08-411-295F-172
26	243	28.9	613	3	US-08-470-335-230
27	243	28.9	613	4	US-08-467-602-329

28	243	28.9	613	4	US-08-411-295F-255	Sequence 255, App
29	243	28.9	615	4	US-08-467-602-288	Sequence 288, App
30	243	28.9	615	4	US-08-411-295F-214	Sequence 214, App
31	243	28.9	628	4	US-08-467-602-247	Sequence 247, App
32	243	28.9	628	4	US-08-411-295F-173	Sequence 173, App
33	243	28.9	647	4	US-08-467-602-371	Sequence 371, App
34	243	28.9	647	4	US-08-411-295F-297	Sequence 297, App
35	243	28.9	662	4	US-08-467-602-289	Sequence 289, App
36	243	28.9	662	4	US-08-411-295F-215	Sequence 215, App
37	243	28.9	830	3	US-08-470-335-231	Sequence 231, App
38	243	28.9	830	4	US-08-467-602-330	Sequence 330, App
39	243	28.9	830	4	US-08-411-295F-256	Sequence 256, App
40	243	28.9	864	4	US-08-467-602-372	Sequence 372, App
41	243	28.9	864	4	US-08-411-295F-298	Sequence 298, App
42	243	28.9	877	3	US-08-470-335-232	Sequence 232, App
43	243	28.9	877	4	US-08-467-602-331	Sequence 331, App
44	243	28.9	877	4	US-08-411-295F-257	Sequence 257, App
45	243	28.9	911	4	US-08-467-602-373	Sequence 373, App

ALIGNMENTS

RESULT 1
US-09-037-681-2
; Sequence 2, Application US/09097681
; Patent No. 6727077
; GENERAL INFORMATION:
; APPLICANT: Young, Paul
; APPLICANT: King, C. Richter
; APPLICANT: Hijazi, Mai
; APPLICANT: Ruben, Steve
; TITLE OF INVENTION: Heregulin-Like Factor
; NUMBER OF SEQUENCES: 22
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Human Genome Sciences, Inc.
; STREET: 9410 Key West Avenue
; CITY: Rockville
; STATE: MD
; COUNTRY: US
; ZIP: 20850
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/09/097,681
; FILING DATE:
; CLASSIFICATION:
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/049,942
; FILING DATE: 17-JUN-1997
; ATTORNEY/AGENT INFORMATION:
; NAME: Hoover, Kenley K.
; REGISTRATION NUMBER: 40,302
; REFERENCE/DOCKET NUMBER: PF83PCT
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 301-3098504
; TELEFAX: 301-309-8439
; INFORMATION FOR SEQ ID NO: 2:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 157 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: protein
; US-09-037-681-2

Query Match 100.0%; Score 842; DB 4; Length 157;
Best Local Similarity 100.0%; Pred. No. 1.3e-85;
Matches 157; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 SSSSATTPTSTSPKFKHTTSTYTERSBHFKCRDKDLAYCLNDGECFVIETLTGSHK 60

Db 1 SSSSSATTTTPTSTSPKFTTTTSTSEHFKPCRDKDLAYCLNDGECFVIETLTGSHK 60
QY 61 HCRCKEGYQGVRCQDFLPKTDLSILSDPNHLGIEFMESEVYQVLSISCIIFGIVVGM 120
Db 61 HCRCKEGYQGVRCQDFLPKTDLSILSDPNHLGIEFMESEVYQVLSISCIIFGIVVGM 120
QY 121 FCAAFYFKSKRNITANSVSERKGLPSQBPNIQQDK 157
Db 121 FCAAFYFKSKRNITANSVSERKGLPSQBPNIQQDK 157

RESULT 2
US-08-899-437-23
; Sequence 23, Application US/08899437
; Patent No. 6121415
; GENERAL INFORMATION:
; APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
; TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related
; TITLE OF INVENTION: Ligands and Uses Therefor
; NUMBER OF SEQUENCES: 23
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Genentech, Inc.
; STREET: 1 DNA Way
; CITY: South San Francisco
; STATE: California
; COUNTRY: USA
; ZIP: 94080
; COMPUTER READABLE FORM:
; MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: WinPatIn (Genentech)
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/899,437
; FILING DATE: 24-Jul-1997
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Conley, Deirdre L.
; REGISTRATION NUMBER: 36,487
; REFERENCE/DOCKET NUMBER: P1084R1
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 650/225-2066
; TELEFAX: 650/952-9881
; INFORMATION FOR SEQ ID NO: 23:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 696 amino acids
; TYPE: Amino Acid
; TOPOLOGY: Linear
; FEATURE:
; NAME/KEY: Human NRG3B2
; LOCATION: 1-696
; IDENTIFICATION METHOD:
; OTHER INFORMATION:
US-08-899-437-23

Query Match 81.9%; Score 689.5; DB 3; Length 696;
Best Local Similarity 92.3%; Pred. No. 8.3e-68;
Matches 131; Conservative 4; Mismatches 4; Indels 3; Gaps 2;
QY 1 SSSSSATTTTPTSTSPKFTTTTSTSEHFKPCRDKDLAYCLNDGECFVIETLTGSHK 60
Db 256 SSSSSATTTTPTSTSPKFTTTTSTSEHFKPCRDKDLAYCLNDGECFVIETLTGSHK 315
QY 61 HCRCKEGYQGVRCQDFLPKTDLSILSDPNHLGIEFMESEVYQVLSISCIIFGIVVGM 119
Db 316 HCRCKEGYQGVRCQDFLPKTDLSILSDPNHLGIEFMESEVYQVLSISCIIFGIVVGM 375
QY 120 MFCAAFYFKSKRNITANSVSSEE 141
Db 376 MFCAAFYFKSKKQ--AKQIQEQ 395

RESULT 3
US-09-126-121-23
; Sequence 23, Application US/09126121
; Patent No. 6252051
; GENERAL INFORMATION:
; APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
; TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related
; TITLE OF INVENTION: Ligands and Uses Therefor
; NUMBER OF SEQUENCES: 23
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Genentech, Inc.
; STREET: 1 DNA Way
; CITY: South San Francisco
; STATE: California
; COUNTRY: USA
; ZIP: 94080
; COMPUTER READABLE FORM:
; MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: WinPatIn (Genentech)
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/09/126,121
; FILING DATE: 30-Jul-1998
; CLASSIFICATION:
; ATTORNEY/AGENT INFORMATION:
; NAME: Conley, Deirdre L.
; REGISTRATION NUMBER: 36,487
; REFERENCE/DOCKET NUMBER: P1084R1D1
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 650/225-2066
; TELEFAX: 650/952-9881
; INFORMATION FOR SEQ ID NO: 23:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 696 amino acids
; TYPE: Amino Acid
; TOPOLOGY: Linear
; FEATURE:
; NAME/KEY: Human NRG3B2
; LOCATION: 1-696
; IDENTIFICATION METHOD:
; OTHER INFORMATION:
US-09-126-121-23
Query Match 81.9%; Score 689.5; DB 3; Length 696;
Best Local Similarity 92.3%; Pred. No. 8.3e-68;
Matches 131; Conservative 4; Mismatches 4; Indels 3; Gaps 2;
QY 1 SSSSSATTTTPTSTSPKFTTTTSTSEHFKPCRDKDLAYCLNDGECFVIETLTGSHK 60
Db 256 SSSSSATTTTPTSTSPKFTTTTSTSEHFKPCRDKDLAYCLNDGECFVIETLTGSHK 315
QY 61 HCRCKEGYQGVRCQDFLPKTDLSILSDPNHLGIEFMESEVYQVLSISCIIFGIVVGM 119
Db 316 HCRCKEGYQGVRCQDFLPKTDLSILSDPNHLGIEFMESEVYQVLSISCIIFGIVVGM 375
QY 120 MFCAAFYFKSKRNITANSVSSEE 141
Db 376 MFCAAFYFKSKKQ--AKQIQEQ 395
RESULT 4
US-08-899-437-6
; Sequence 6, Application US/08899437
; Patent No. 6121415
; GENERAL INFORMATION:
; APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
; TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related
; TITLE OF INVENTION: Ligands and Uses Therefor
; NUMBER OF SEQUENCES: 23
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Genentech, Inc.
; STREET: 1 DNA Way

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; CITY: South San Francisco
; STATE: California
; COUNTRY: USA
; ZIP: 94080
;
; COMPUTER READABLE FORM:
; MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: WinPatIn (Genentech)
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/899,437
; FILING DATE: 24-Jul-1997
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Conley, Deirdre L.
; REGISTRATION NUMBER: 36,487
; REFERENCE/DOCKET NUMBER: P1084R1
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 650/225-2066
; TELEFAX: 650/952-9881
; INFORMATION FOR SEQ ID NO: 6:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 720 amino acids
; TYPE: Amino Acid
; TOPOLOGY: Linear
; FEATURE:
; NAME/KEY: hNRG3B1 amino acid sequence
; LOCATION: 1-720
; IDENTIFICATION METHOD:
; OTHER INFORMATION:
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; US-08-899-437-6
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; Query Match 81.9%; Score 689.5; DB 3; Length 720;
; Best Local Similarity 92.3%; Pred. No. 8.7e-68;
; Matches 131; Conservative 4; Mismatches 4; Indels 3; Gaps 2;
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; Qy 1 SSSSSATTTTPTSTSPKFTHTTSTSEHFPCRDKOLAYCLNDGECFVIETLTGSHK 60
; Db 256 SSSSSATTTTPTSTSPKFTHTTSTSEHFPCRDKOLAYCLNDGECFVIETLTGSHK 315
;
; Qy 61 HCRCKEGYQGVRCDFLPKTDLSILSDP-NHLGIEFMSEEEVYQROVLISCIIFGIVVG 119
; Db 316 HCRCKEGYQGVRCDFLPKTDLSILSDP-DHDLGIEFMSEEEVYQROVLISCIIFGIVVG 375
;
; Qy 120 MFCAAFYFKSKRNTANSVSEE 141
; Db 376 MFCAAFYFKSKKQ--AKQIQEQ 395
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; RESULT 5
; US-09-126-121-6
; Sequence 6, Application US/09126121
; Patent No. 6252051
; GENERAL INFORMATION:
; APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
; TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related
; TITLE OF INVENTION: Ligands and Uses Therefor
; NUMBER OF SEQUENCES: 23
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Genentech, Inc.
; STREET: 1 DNA Way
; CITY: South San Francisco
; STATE: California
; COUNTRY: USA
; ZIP: 94080
; COMPUTER READABLE FORM:
; MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: WinPatIn (Genentech)
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/09/126,121
; FILING DATE: 30-Jul-1998
;
; CITY: South San Francisco
; STATE: California
; COUNTRY: USA
; ZIP: 94080
;
; COMPUTER READABLE FORM:
; MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: WinPatIn (Genentech)
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/09/899,437
; FILING DATE: 24-Jul-1997
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Conley, Deirdre L.
; REGISTRATION NUMBER: 36,487
; REFERENCE/DOCKET NUMBER: P1084R1
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 650/225-2066
; TELEFAX: 650/952-9881
; INFORMATION FOR SEQ ID NO: 6:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 720 amino acids
; TYPE: Amino Acid
; TOPOLOGY: Linear
; FEATURE:
; NAME/KEY: hNRG3B1 amino acid sequence
; LOCATION: 1-720
; IDENTIFICATION METHOD:
; OTHER INFORMATION:
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; US-09-899-437-6
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; Query Match 81.9%; Score 689.5; DB 3; Length 720;
; Best Local Similarity 92.3%; Pred. No. 8.7e-68;
; Matches 131; Conservative 4; Mismatches 4; Indels 3; Gaps 2;
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; Qy 1 SSSSSATTTTPTSTSPKFTHTTSTSEHFPCRDKOLAYCLNDGECFVIETLTGSHK 60
; Db 256 SSSSSATTTTPTSTSPKFTHTTSTSEHFPCRDKOLAYCLNDGECFVIETLTGSHK 315
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; Qy 61 HCRCKEGYQGVRCDFLPKTDLSILSDP-NHLGIEFMSEEEVYQROVLISCIIFGIVVG 119
; Db 316 HCRCKEGYQGVRCDFLPKTDLSILSDP-DHDLGIEFMSEEEVYQROVLISCIIFGIVVG 375
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; Qy 120 MFCAAFYFKSKRNTANSVSEE 141
; Db 376 MFCAAFYFKSKKQ--AKQIQEQ 395
;
; RESULT 6
; US-09-037-681-22
; Sequence 22, Application US/09097681
; Patent No. 6727077
; GENERAL INFORMATION:
; APPLICANT: Young, Paul
; APPLICANT: King, C. Richter
; APPLICANT: Hijazi, Mai
; APPLICANT: Ruben, Steve
; TITLE OF INVENTION: Heregulin-Like Factor
; NUMBER OF SEQUENCES: 22
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Human Genome Sciences, Inc.
; STREET: 9410 Key West Avenue
; CITY: Rockville
; STATE: MD
; COUNTRY: US
; ZIP: 20850
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/09/097,681
; FILING DATE:
; CLASSIFICATION:
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/049,942
; FILING DATE: 17-JUN-1997
; ATTORNEY/AGENT INFORMATION:
; NAME: Hoover, Kenley K.
; REGISTRATION NUMBER: 40,302
; REFERENCE/DOCKET NUMBER: PF383PCT
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 301-3098504

```

✓

[illegible]

TELECOMMUNICATION INFORMATION:
TELEPHONE: 650/225-2066
TELEFAX: 650/952-9881
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
LENGTH: 362 amino acids
TYPE: Amino Acid
TOPOLOGY: Linear
FEATURE:
NAME/KEY: mNRG3 extracellular domainAmino acid seq
LOCATION: 1-362
IDENTIFICATION METHOD:
OTHER INFORMATION:
US-08-899-437-3

Query Match 64.1%; Score 539.5; DB 3; Length 362;
Best Local Similarity 95.2%; Pred. No. 1.5e-51;
Matches 99; Conservative 4; Mismatches 0; Indels 1; Gaps 1;
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DB 259 SSTSTTTTPTSTSPKPHHTTSTSESEHFKPCRDKDLAYCLNDGECFVIETLTGSHKH 318
QY 62 CRCKEGYQGVRCDOFLPKTDSILSDP-NHLGIEFMSESEVYQK 104
DB 319 CRCKEGYQGVRCDOFLPKTDSILSDP-DHLGIEFMSESEVYQK 362

RESULT 12
US-09-126-121-3
Sequence 3, Application US/09126121
Patent No. 6252051
GENERAL INFORMATION:
APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related
TITLE OF INVENTION: Ligands and Uses Therefor
NUMBER OF SEQUENCES: 23
CORRESPONDENCE ADDRESS:
ADDRESSEE: Genentech, Inc.
STREET: 1 DNA Way
CITY: South San Francisco
STATE: California
COUNTRY: USA
ZIP: 94080
COMPUTER READABLE FORM:
MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: WinPatIn (Genentech)
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/126.121
FILING DATE: 30-Jul-1998
CLASSIFICATION:
ATTORNEY/AGENT INFORMATION:
NAME: Conley, Deirdre L.
REGISTRATION NUMBER: 36,487
REFERENCE/DOCKET NUMBER: P1084R1D1
TELECOMMUNICATION INFORMATION:
TELEPHONE: 650/225-2066
TELEFAX: 650/952-9881
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
LENGTH: 362 amino acids
TYPE: Amino Acid
TOPOLOGY: Linear
FEATURE:
NAME/KEY: mNRG3 extracellular domainAmino acid seq
LOCATION: 1-362
IDENTIFICATION METHOD:
OTHER INFORMATION:
US-09-126-121-3

Query Match 64.1%; Score 539.5; DB 3; Length 362;

Best Local Similarity 95.2%; Pred. No. 1.5e-51;
Matches 99; Conservative 4; Mismatches 0; Indels 1; Gaps 1;
QY 2 SSSAATTTTPTSTSPKPHHTTSTSESEHFKPCRDKDLAYCLNDGECFVIETLTGSHKH 61
DB 259 SSTSTTTTPTSTSPKPHHTTSTSESEHFKPCRDKDLAYCLNDGECFVIETLTGSHKH 318
QY 62 CRCKEGYQGVRCDOFLPKTDSILSDP-NHLGIEFMSESEVYQK 104
DB 319 CRCKEGYQGVRCDOFLPKTDSILSDP-DHLGIEFMSESEVYQK 362

RESULT 13
US-09-553-769-6
Sequence 6, Application US/09553769
Patent No. 6544759
GENERAL INFORMATION:
APPLICANT: Harari, Daniel
APPLICANT: Yarden, Yosef
TITLE OF INVENTION: NOVEL GROWTH FACTOR WHICH ACTS THROUGH ErbB-4 RECEPTOR TYROSINE K
TITLE OF INVENTION: SEQUENCES ENCODING SAME AND USES THEREOF
FILE REFERENCE: 00/20522
CURRENT APPLICATION NUMBER: US/09/553,769
CURRENT FILING DATE: 2000-04-21
NUMBER OF SEQ ID NOS: 18
SOFTWARE: PatentIn version 3.0
SEQ ID NO 6
LENGTH: 48
TYPE: PRT
ORGANISM: Mus musculus
US-09-553-769-6

Query Match 33.5%; Score 282; DB 4; Length 48;
Best Local Similarity 100.0%; Pred. No. 3.9e-24;
Matches 48; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 30 EHFKPCRDKDLAYCLNDGECFVIETLTGSHKHCRCKEGYQGVRCDOFL 77
DB 1 EHFKPCRDKDLAYCLNDGECFVIETLTGSHKHCRCKEGYQGVRCDOFL 48

RESULT 14
US-08-899-437-4
Sequence 4, Application US/08899437
Patent No. 6121415
GENERAL INFORMATION:
APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related
TITLE OF INVENTION: Ligands and Uses Therefor
NUMBER OF SEQUENCES: 23
CORRESPONDENCE ADDRESS:
ADDRESSEE: Genentech, Inc.
STREET: 1 DNA Way
CITY: South San Francisco
STATE: California
COUNTRY: USA
ZIP: 94080
COMPUTER READABLE FORM:
MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: WinPatIn (Genentech)
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/899,437
FILING DATE: 24-Jul-1997
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Conley, Deirdre L.
REGISTRATION NUMBER: 36,487
REFERENCE/DOCKET NUMBER: P1084R1
TELECOMMUNICATION INFORMATION:
TELEPHONE: 650/225-2066
TELEFAX: 650/952-9881

Search completed: July 13, 2005, 20:29:26
Job time : 43 secs

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; INFORMATION FOR SEQ ID NO: 4:
; SEQUENCE CHARACTERISTICS:
;   LENGTH: 47 amino acids
;   TYPE: Amino Acid
;   TOPOLOGY: Linear
; FEATURE:
;   NAME/KEY: NRG3 EGF-like domain/amino acid seq.
;   LOCATION: 1-47
; IDENTIFICATION METHOD:
; OTHER INFORMATION:
US-08-899-437-4

Query Match      32.9%; Score 277; DB 3; Length 47;
Best Local Similarity 100.0%; Pred. No. 1.3e-23;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 31 HFKECRDKDLAYCLNDGECFVIETLTGSHKHCRCKEGYQGVRCDOFL 77
Db 1 HFKECRDKDLAYCLNDGECFVIETLTGSHKHCRCKEGYQGVRCDOFL 47

RESULT 15
US-08-899-437-8
; Sequence 8, Application US/08899437
; Patent No. 6121415
; GENERAL INFORMATION:
; APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
; TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related
; TITLE OF INVENTION: Ligands and Uses Therefor
; NUMBER OF SEQUENCES: 23
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Genentech, Inc.
; STREET: 1 DNA Way
; CITY: South San Francisco
; STATE: California
; COUNTRY: USA
; ZIP: 94080
; COMPUTER READABLE FORM:
; MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: WinPatIn (Genentech)
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/899,437
; FILING DATE: 24-Jul-1997
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Conley, Deirdre L.
; REGISTRATION NUMBER: 36,487
; REFERENCE/DOCKET NUMBER: P1084R1
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 650/225-2066
; TELEFAX: 650/952-9881
; INFORMATION FOR SEQ ID NO: 8:
; SEQUENCE CHARACTERISTICS:
;   LENGTH: 47 amino acids
;   TYPE: Amino Acid
;   TOPOLOGY: Linear
; FEATURE:
;   NAME/KEY: NRG3 EGF-like domain/amino acid seq.
;   LOCATION: 1-47
; IDENTIFICATION METHOD:
; OTHER INFORMATION:
US-08-899-437-8

Query Match      32.9%; Score 277; DB 3; Length 47;
Best Local Similarity 100.0%; Pred. No. 1.3e-23;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 31 HFKECRDKDLAYCLNDGECFVIETLTGSHKHCRCKEGYQGVRCDOFL 77
Db 1 HFKECRDKDLAYCLNDGECFVIETLTGSHKHCRCKEGYQGVRCDOFL 47
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